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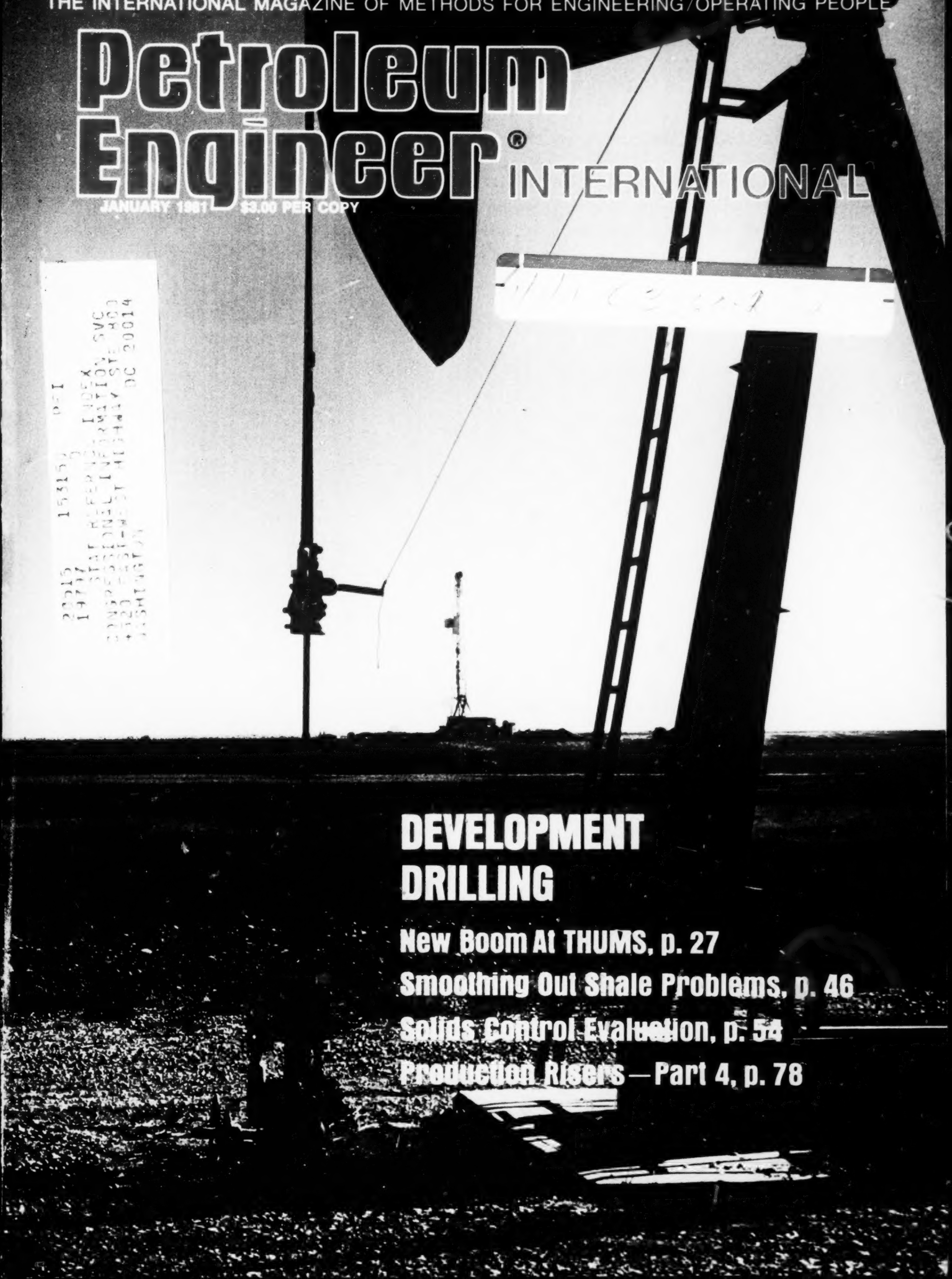

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Canadian Rigs Seen Moving South

Disenchantment with Canada's proposed new energy policy hasn't shown up in the accompanying chart yet, but indications are some 100 Canadian rigs will have moved south of the border by the end of this year.

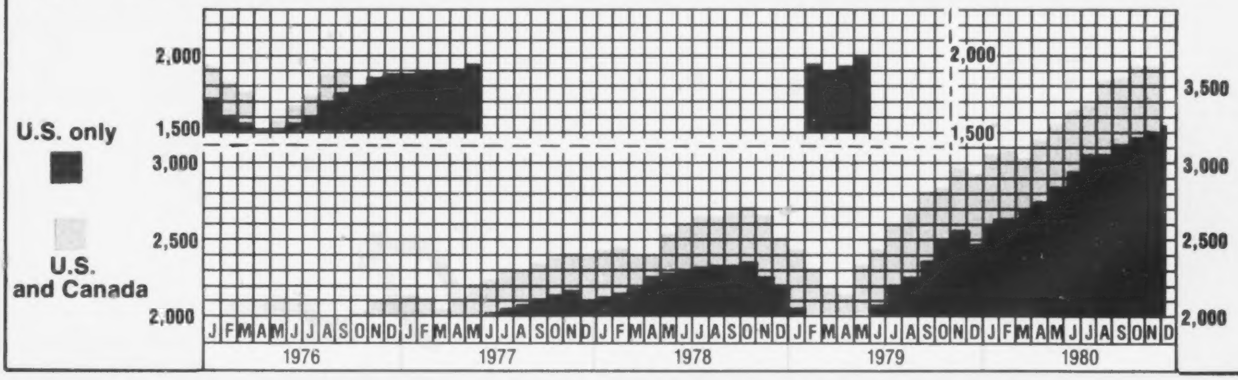
With the U.S. rig count on December 8 already close to 700 rigs higher than it was at the same time in 1979, the Canadian rigs probably will come in handy if the U.S.'s spectacular rise in drilling is to continue throughout this year.

What the slowdown in Canadian drilling and the government's attempted Canadiazation of the petroleum industry will do to the boom in western Canada, however, remains to be seen. Some observers feel the new energy proposals could be the straw that breaks the cigarette, and they look for Canada to eventually break up into three or four separate countries.

Rotary Rigs Actually Making Hole In United States & Canada

As Reported to International Association of Drilling Contractors by Hughes Tool Company

	Nov. 17, 1980	Nov. 24, 1980	Dec. 1, 1980	Dec. 8, 1980
Alabama	13	13	11	9
Alaska				
Land	7	18	17	23
Offshore	1	2	1	1
Arkansas	29	30	32	34
Arizona	2	2	1	1
California				
Land	106	102	102	109
Offshore	21	21	21	21
Total	127	123	123	130
Colorado	75	71	74	68
Florida	4	4	3	3
Georgia				
Offshore	0	2	1	1
Hawaii	1	1	1	0
Idaho	2	2	2	1
Illinois	21	19	18	19
Kansas	151	152	152	149
Kentucky	4	6	5	5
North Louisiana	54	54	54	52
South Louisiana				
Inland Waters	75	76	78	81
Land	171	165	164	165
Offshore	149	147	149	141
Total	449	442	445	439
Michigan	26	35	35	32
Mississippi	61	60	58	65
Montana	59	67	64	62
Nebraska	16	15	16	16
Nevada	5	6	6	6
New Mexico	121	125	115	121
New York	11	10	10	11
North Dakota	87	84	86	93
Ohio	87	90	90	90
Oklahoma	465	468	476	483
Oregon	1	1	1	1
Pennsylvania	35	34	34	33
Rhode Island				
Offshore	2	2	2	2
South Dakota	2	2	2	1
Tennessee	1	1	1	1
Texas				
Offshore	76	76	75	80
Dist. 1	42	44	43	50
Dist. 2	54	56	69	68
Dist. 3	183	182	179	176
Dist. 4	115	112	102	105
Dist. 5 & 6	125	123	123	124
Dist. 7B	89	87	79	78
Dist. 7C	80	79	83	86
Dist. 8	124	125	120	124
Dist. 8A	79	79	75	78
Dist. 9	73	74	70	70
Dist. 10	57	53	52	53
Total	1097	1090	1070	1092
Utah	57	59	53	63
Virginia	2	2	2	2
Washington State	1	1	1	1
West Virginia	35	31	36	37
Wyoming	174	161	165	167
Total U.S.	3231	3231	3209	3262
Western Canada	407	394	405	395
Eastern Canada	2	2	4	4
U.S. and Canada	3640	3627	3618	3661



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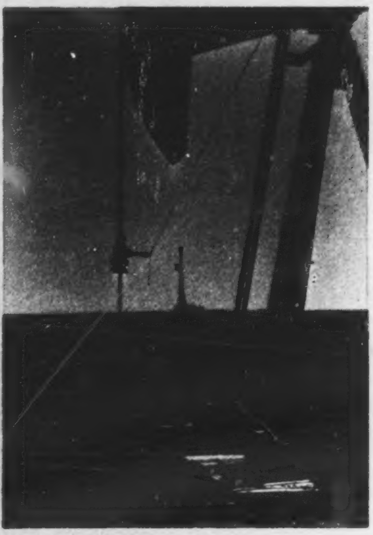

ABOUT THE COVER: Pumping unit frames development well being drilled for Standard Oil Co. (Indiana) in Colorado's Wattenberg field.

NEXT MONTH: The annual Offshore Forecast issue will cover some of the innovative technology that is helping the industry move into deeper and more hostile waters. In addition, the issue will contain the Offshore Rig Locator.

ENERGY management report™

by Ernestine Adams

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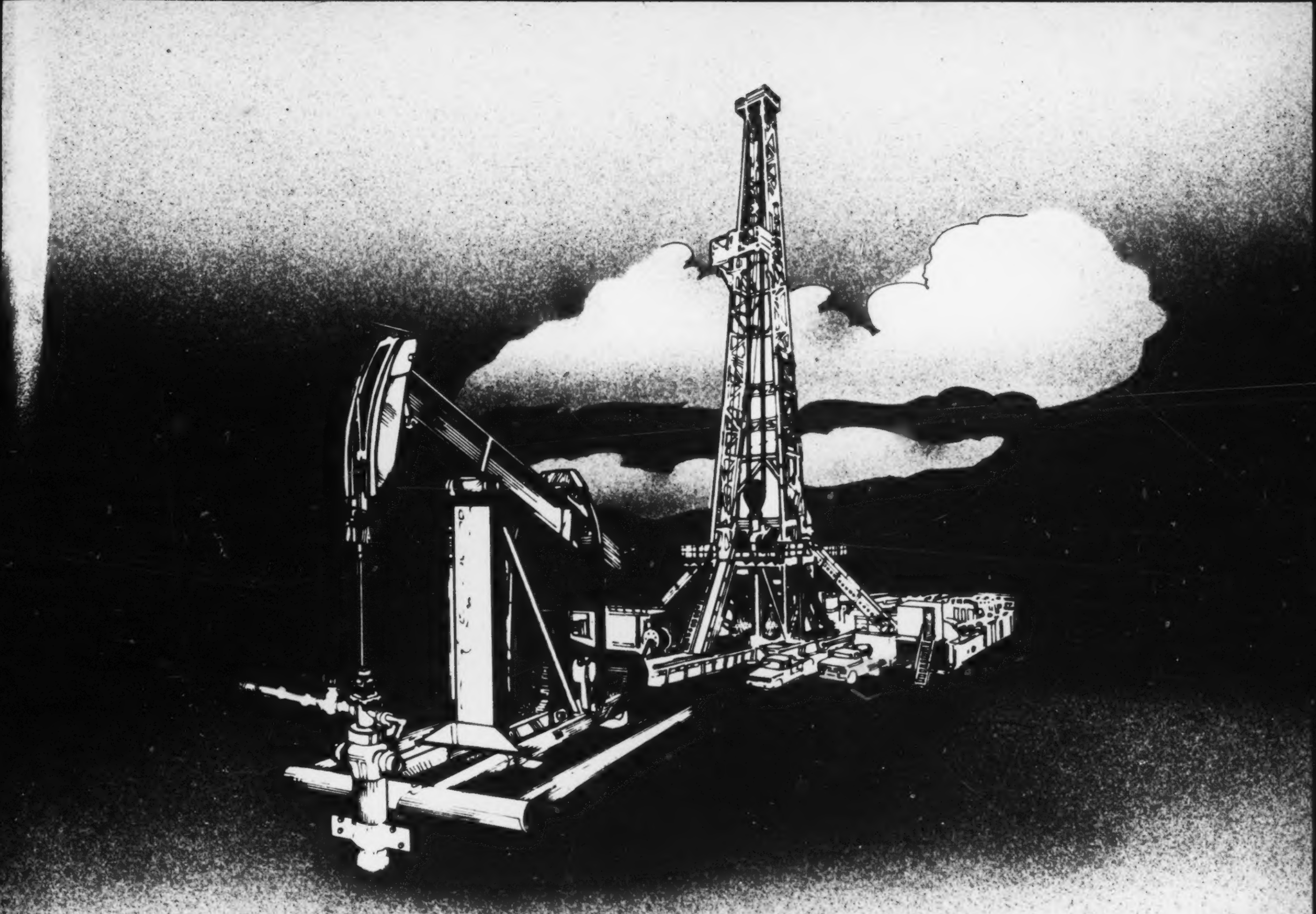


Developers Set Drilling Pace

by Rich McNally, *Associate Editor*

Development drilling, which has been on a steady rise in the U.S. ever since the Arab oil embargo, could account for as many as 80% of all completions this year as operators continue their attempt to turn around the country's production decline.

In the years just prior to the 1973 embargo, development drilling regularly accounted for approximately 69% of all wells. Since then, however, the percentage has risen steadily, and it stood at 78 for the first 3 quarters of 1980. Even at 75%, however, indications are that development wells this year will exceed the annual total of all wells drilled in the U.S. as recently as 1978, when 48,513 wells were completed.

Among the many reasons for the development drilling rage is the drive to get as much oil and gas as possible out of existing reservoirs, plus the continued reluctance on the part of government to open up new and unexplored regions. As long as operators remain limited in their choices of areas in which to explore for oil and gas, they are not likely to narrow the gap between wildcats and development wells.

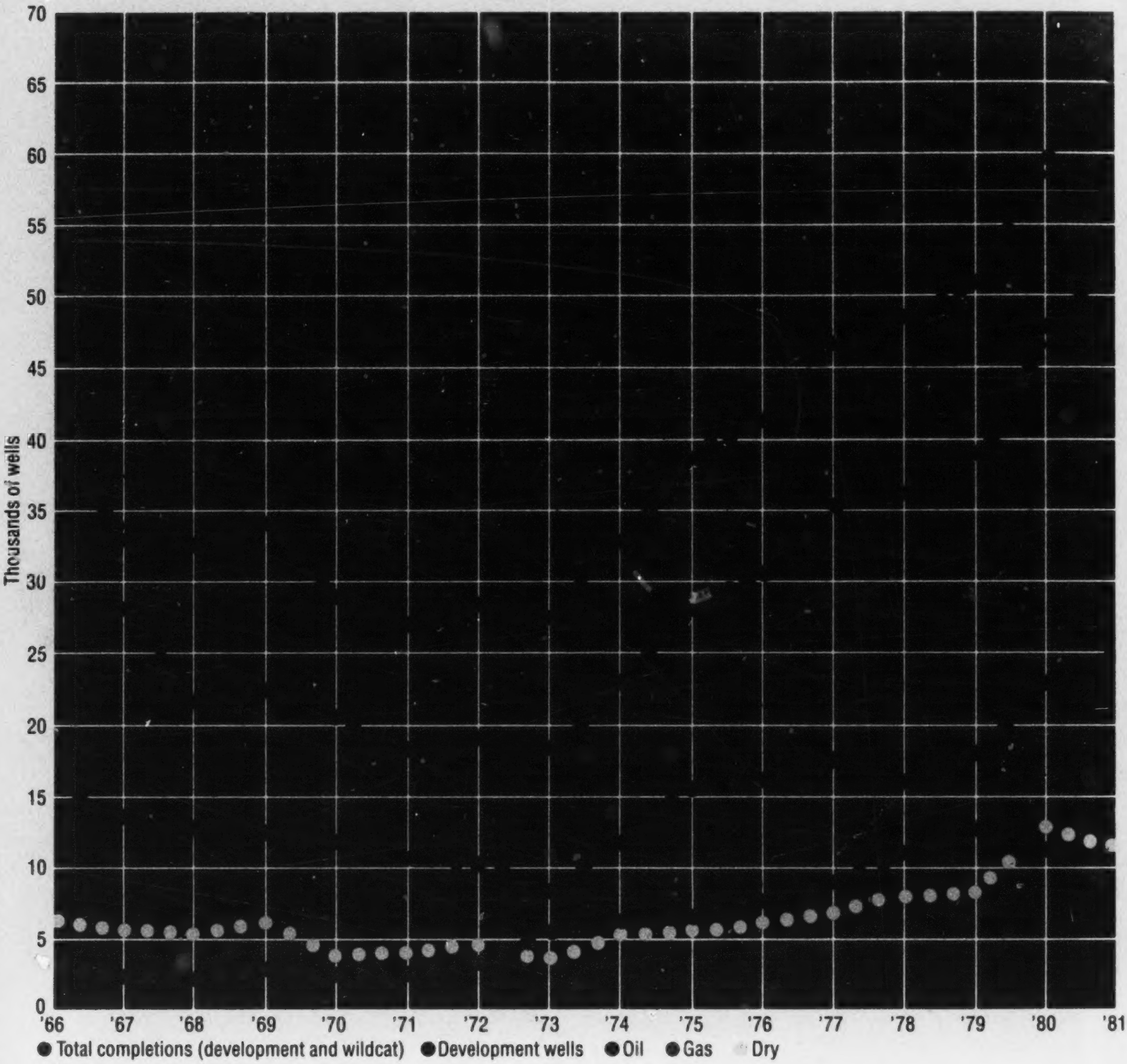
For the first time in a long time, however, there is hope for a change in federal indifference toward wildcatting. One of the most outspoken advocates of greatly expanded exploratory efforts in prospective basins around the world is Michel T. Halbouty, the Houston, Tex., oilman who also happens to be one of President-elect Ronald Reagan's primary energy advisors.

One of the oilmen closest to President Carter was Robert A. Hefner III of the GHK Companies in Oklahoma City. He is a champion of deep drilling for natural gas in the Anadarko Basin of western Oklahoma and the Texas Panhandle and it is more than just coincidence that one of the Carter administration's most positive energy steps was decontrol of deep natural gas prices.

There is precedent, therefore, for the hope that new areas will eventually be opened up for exploration which, if successful, will lead to still more development drilling.

Meanwhile, the industry will continue to concentrate on the acreage that is available. Sun Co., for example, said recently that it will drill an average of 660 net development wells per year for the next 3

Developers Set Pace



Oil, gas, and dry development well completion trends in the U.S. since 1966.

years. That represents an increase of more than 35% over the company's 1980 program. Sun recently doubled its U.S. acreage by purchasing almost 4 million net acres of unexplored land from Texas Pacific Oil Co. A year earlier, Shell Oil Co. made a similar move by purchasing Belridge Oil Co.

And they are not alone. A number of major oil companies also are looking into purchase of independent producers such as Texas Pacific because, until additional federal lands are opened up for leasing, it is a good way to acquire oil and gas reserves suitable for their expanding development drilling programs. Getty Oil Co., for example, has bought Reserve Oil & Gas Co.; Standard Oil Co. (Ohio) purchased Webb Resources Inc. and Newco Exploration Co.; Gulf Oil Co. bought Amalgamated Bonanza Petroleum Ltd., and Mobil Corp. now owns General Crude Oil Co.

Manpower Limitations

Hughes Tool Co. recently predicted that U.S. drillers would complete 49,875 development wells this year, but that the total will increase to only 49,950 in 1982. This would represent an increase of only 0.1% in development drilling despite a 4% increase in completions. Among the reasons cited by Hughes is availability of qualified manpower—and not just rig personnel. Small companies, it is said, are picking off the majors' geologists, geophysicists, and petroleum engineers at an alarming rate. By purchasing small companies, therefore, larger companies also may be assuring the return of some of their talent.

Qualified drilling personnel are in short supply, as usual, but there also appears to be a serious shortage of people available for training. This is particularly unfortunate right now because the rig building in-

The Quarterly International Active Rig Report as prepared by Hughes Tool Co., Houston, Tex.

Country	Sept. '79	Dec. '79	Mar. '80	June '80	Sept. '80
South America, Central America and Mexico					
Argentina	66	71	73	72	76
Bolivia	6	4	4	4	4
Chile	6	7	6	6	7
Ecuador	4	3	3	3	3
Peru	21	19	19	20	22
Brazil	61	63	64	76	73
Venezuela	44	52	52	54	50
Colombia	17	15	12	14	10
Trinidad	13	13	13	14	12
Mexico	205	213	213	216	216
Central America	–	2	2	3	4
	445	462	461	482	477
Europe					
Austria	11	8	9	8	7
Belgium	–	–	1	1	–
Denmark	–	–	2	3	3
France	13	11	11	11	11
Germany	20	22	21	23	22
Greece	2	2	2	3	3
Holland	17	20	18	20	17
Ireland	4	1	–	–	2
Italy	23	23	19	16	16
Norway	8	8	11	11	11
Spain	6	6	6	12	11
Switzerland	–	–	1	1	1
United Kingdom (North Sea)	33	40	43	50	50
Yugoslavia	22	22	22	22	22
	159	163	166	181	176
Africa					
Algeria	113	113	113	113	111
Angola	5	5	5	5	5
Cameroon	3	7	7	4	4
Congo	–	4	4	4	4
Gabon	6	6	9	9	9
Libya	40	38	45	40	40
Morocco	2	2	2	2	2
Chad	1	1	1	1	1
Nigeria	18	20	20	20	20
Tunisia	8	7	7	7	7
Niger	5	5	5	5	5
Ivory Coast	3	3	3	3	3
South Africa	2	2	2	2	2
Sudan	2	2	2	2	2
Zaire	1	1	1	1	1
	209	216	226	218	216
Middle East					
Abu Dhabi	21	21	21	24	24
Bahrain	1	1	1	1	1
Dubai	1	1	1	3	3
Egypt	20	22	24	27	27
Iran	10	–	–	–	–
Iraq	37	37	37	39	39
Kuwait	2	2	2	3	3
Oman	6	6	7	8	8
Qatar	5	7	7	8	8
Ras Al Khaimah	–	–	–	1	1
Saudi Arabia	24	24	24	25	25
Sharjah	–	–	–	1	1
Syria	16	16	16	15	15
Turkey	7	7	7	7	40
	150	144	147	162	195
Asia					
Bangladesh	2	2	2	2	4
Brunei	8	8	8	8	7
Burma	23	23	23	24	27
India	40	41	43	42	43
Indonesia	66	68	72	77	76
Japan	15	15	15	16	16
North Korea	1	1	1	1	1
Malaysia	13	13	11	11	13
Pakistan	12	13	14	12	14
Philippines	15	16	17	13	9
Thailand	2	3	5	4	5
Taiwan	10	12	12	12	12
Vietnam	2	2	1	1	–
	217	217	224	223	227
Australia	13	12	12	17	19
New Zealand	1	2	2	1	1
Papua New Guinea	–	–	–	1	1
	14	14	14	19	21
Total free world except U.S. and Canada	**1,194**	**1,216**	**1,238**	**1,285**	**1,312**
North America					
Canada	398	330	400	418	387
United States	2,329	2,506	2,659	2,901	3,138
Totals	**3,927**	**4,052**	**4,297**	**4,604**	**4,837**

dustry is turning out more than 40 new rigs each month. Nevertheless, if the people can be found (and it's hard to believe there aren't at least a few good men out there interested in working for a living, even in this day and age), it's entirely possible that development drilling will top 50,000 completions this year and increase by much more than 0.1% over that total in 1982.

It would help, of course, if the Department of Energy would see the light and extend to secondary recovery efforts the same benefits that are allowed for tertiary efforts. Much of the looked-for increase in development drilling then would be infill drilling in established reservoirs where original well spacings would be reduced to greatly increase the amount of recoverable reserves. This idea was given additional merit a few months ago with publication in this magazine of a DeGolyer and MacNaughton article outlining an approach to secondary recovery that DeGolyer and MacNaughton says would result in recovery of 120 billion bbl of the 300 billion bbl of oil previously believed to be unrecoverable in the U.S. (PETROLEUM ENGINEER INTERNATIONAL, November 1980, p. 27).

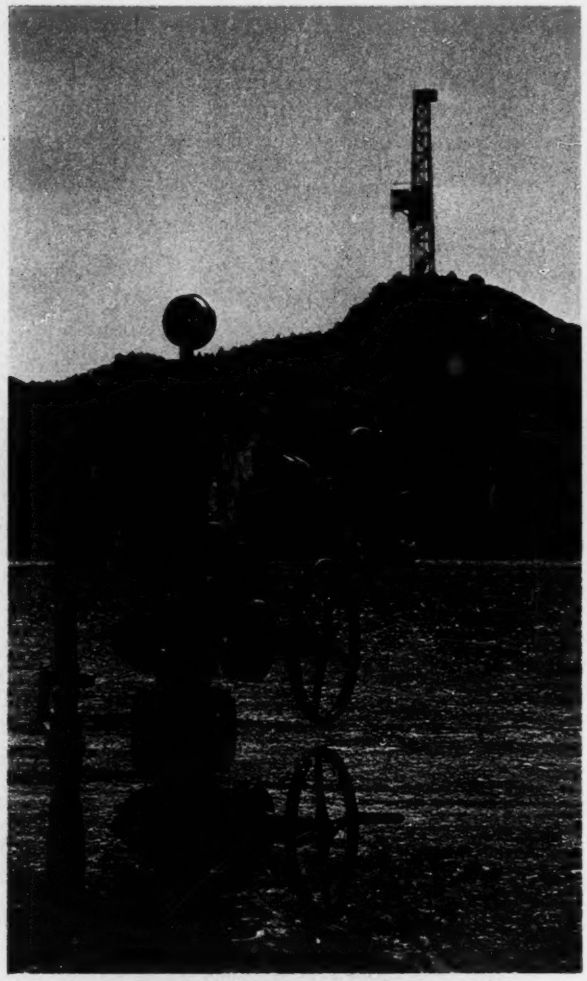
Space limitations preclude a country-by-country rundown of development drilling prospects around the world, but indications are that, with the possible exception of such countries as Iran, Iraq, Afghanistan, and Canada, expeditious development of indigenous oil and gas reserves now is recognized by most governments as their only defense against spiraling prices of imported oil.

Increased Activity

Development drilling should be on the increase in most areas, therefore, although no country has come even close to the rate of increased activity evident in the U.S. As indicated in the accompanying international report from Hughes Tool Co., the Free World's active rig count increased by just over 100 rigs during a 1-year period in which the U.S. added close to 500 new rigs to its inventory. Active rigs, of course, are not the same as rig inventory, but the implications are clear.

Except for Turkey, which changed its rules recently to attract foreign explorationists, all countries covered in the Hughes report have been content with the status quo or with gradual increases in drilling activity. No country, excepting, again, Turkey, registered major increases in activity during the year, but Argentina was up 10, Brazil gained 12, Mexico 11, UK 17, and Indonesia 10.

Turkey's dramatic increase from 7 rigs to 40 during the third quarter of 1980 may be slightly misleading because, prior to the middle of 1979, that country had been running 15 to 20 rigs regularly. So the third quarter 1980 total is essentially a rebound, although admittedly a sensational one. Turkey's best drilling



Development well in the background is being drilled for Apache Corp. in the Blacktail Creek prospect of the Elkhorn Ranch oilfield in Billings County, North Dakota. Apache now has ten producers in the field.

year was 1977, when 105 wells were completed. Of these, 57 were development wells. The annual total fell to 77 wells in 1978, but 42 of them were development wells.

Development drilling should register a healthy increase in India within a few years as a result of that country's $6.25 billion bill for imported oil last year. Approximately 25 onshore and offshore blocks now are available to foreign bidders, with agreements expected to be signed before midyear. Exploration, however, probably will wait until after the monsoon season ends in late summer.

Included in the blocks India is offering are areas along the west coast, south of Ratnagiri in Maharashtra state, and on the east coast, south of Pondicherry. The government, however, is not expected to permit foreign firms to explore in areas where its Oil and Natural Gas Commission already has discovered hydrocarbons. ONGC currently is actively exploring the offshore Godavari Basin in the Bay of Bengal and the Andaman Island shelf, where one well already has yielded gas. In addition, ONGC plans to drill four more wells in the Cauvery Basin, on the east coast, where one of the five wells already drilled turned up weak gas deposits. A deep well, to 15,000 ft, is planned for the Gulf of Kutch on the west coast, and a rank wildcat is scheduled to be drilled offshore in the Lakshadweep chain of coral islands off the southwest coast.

Oil India Ltd. is busy developing a 4,500-sq-mile area in the Mahanadi Basin off the east coast, next to where it has just been granted an additional 10,500-sq-mile concession.

Foreign Participation

All this activity, along with good prospects for increased foreign participation, makes India a potential market for at least $1 billion worth of exploration and production equipment during the 1980s.

Pakistan also is anxious to attract foreign participation in its oil and gas search, and has talked most recently with British Petroleum Co. about exploring for oil in Baluchistan province.

India and Pakistan are typical of those parts of the world where exploration for oil and gas had been half-hearted, at best, until events of recent years—most graphically in nearby Iran and Iraq—created a strong sense of urgency. Pakistan imports more than 29 million bbl of crude oil a year, while producing only 3.7 million bbl. India imports more than 100 million bbl/year, but its import bill for 1980 approached $6.25 billion, compared with a bill for $4.75 billion in 1979 for the same level of imports.

In Jakarta, Indonesia, meanwhile, the Association of Southeast Asian Nations (ASEAN) signed a cooperation agreement with a United Nations committee for coordinating joint prospecting for offshore mineral resources. The agreement covers stratigraphic correlation studies, establishment of an oil data bank, study of geothermometry and heat flow, and analysis of the marine environment.

The exploration pace in these areas, therefore, should pick up markedly within the next few years, and that could be good news for development drillers during the remainder of the 1980s.

China also is in the market for Western equipment and technology because output from its existing onshore fields is expected to begin declining by 1982. China has already contracted with Japanese, U.S., and British firms for offshore exploratory drilling and is considering bids from Western firms for development of offshore oil and gas reserves.

Agreements have been signed by China with Japanese and French firms to develop reserves in the Bohai and Beibu Gulfs, under joint-investment and risk-sharing arrangements. American oil firms are expected to assume a major role in developing the oil potential of South China Sea fields.

Onshore, China is hoping to stir up foreign interest in potential oil deposits in the far western province of Xinjiang. A number of U.S. oil companies reportedly have expressed interest, but problems of producing the oil and getting it to the rest of the country are

Alaskan in scale. Most of Xinjiang is desert and mountains, scorching hot in summer and frozen in winter. It is also 2,000 miles from China's industrial centers along the east coast.

China is anxious to develop its onshore oil, in any event, because most of its offshore reserves already are earmarked for export markets. The only major oilfield currently in production in Xinjiang is at Karamai, in the northwest. Output is 80,000 b/d, and the oil is transported by truck to Urumqi, 230 miles to the southeast, and then moved in railroad tank cars to a refinery in Lanzhou, another 1,000 miles to the east.

Russian Pipeline Proposal

Although it probably won't have an effect on foreign petroleum and drilling companies, Russia could be the scene of much development drilling if its 2,500-mile pipeline proposal gains approval. The $14 billion project would connect customers in Western Europe with gas supplies in western Siberia. The Russians will undoubtedly do their own development drilling to increase gas production from the Yamal field for the project, but there could be a big market for development drilling equipment and supplies if Afghanistan-inspired sanctions can be overcome. If all goes as planned, Siberian gas could be flowing into Western Europe as early as 1984.

Another potential development drilling area could turn up offshore Ireland within the next year or so. Exploration in the Porcupine Basin, west of Galway and the Aran Islands, could find as much as 300 million bbl of recoverable oil, or half the country's imports. Development drilling in the area would be quite a project, however. Waters are 1,200 ft deep, and they're much more hostile than waters in the Gulf of Mexico, home of the current water depth production record of 1,000 ft.

In the North Sea, expectations are that development drilling will not show much of an increase for another 3 years because all available rigs are spoken for. Exploratory drilling, which is expected to increase by 40% by 1983 over a relatively low point in 1979, will absorb most of the new rigs expected to join the North Sea fleet for the next few years.

Heavy Oil Development

Across the Atlantic Ocean, Venezuela could become a major development drilling province if its $8 billion plan for development of the Orinoco heavy oil belt gains approval. The main catch is that the plan involves participation of foreign oil companies, which have not been welcome in that country since the government nationalized its oil industry in 1976.

Development of the 17,000-sq-mile reserve could result in production of 300,000 b/d of upgraded crude by the year 2000. Initial production in 1988 would be about 125,000 b/d. The project includes approximately $20 billion in production and refining installations and $10 billion in infrastructure development. More than 1,000 development wells are called for, in addition to 185 miles of oil pipeline and 42 miles of water pipeline.

Elsewhere in Latin America, Brazil's national oil company, Petrobras, is embarking on an ambitious 5-year plan to reach an output of 500,000 b/d of oil by the end of 1985. Production from existing fields, either producing or being developed, is projected to reach 370,000 b/d by 1985, which means that additional reserves on the order of 1.9 billion bbl will have to be discovered within 3 or 4 years to permit added production of 130,000 b/d.

The 5-year plan calls for the drilling of 1,750 wildcats and shooting of approximately 200,000 miles of seismic lines.

Aid from Mexico

Mexico, which is feeling good about its petroleum prowess these days, already is exploring for oil and gas in Costa Rica and Nicaragua and is offering to lend a hand to such additional countries as Panama, Cuba, and China. At a meeting in Mexico City recently, Jorge Diaz Serrano, head of Pemex, the country's national oil monopoly, said that Mexico led the world in discovery of new petroleum deposits during the 1970s. In 1976, he said, Mexico's proven reserves were about 6.3 billion bbl. He added that the current proven reserves figure for Mexico is 60.126 billion bbl.

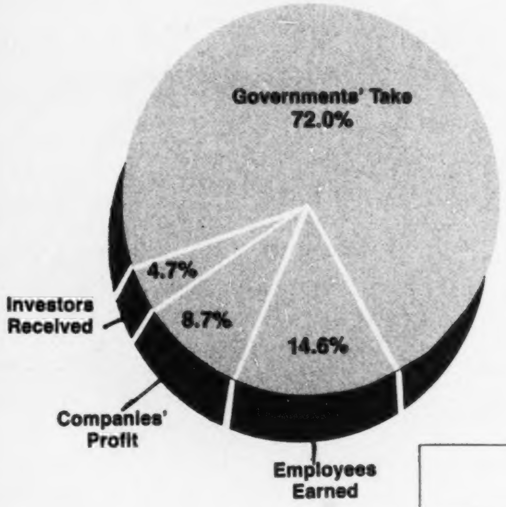
Mexico's 10-year energy plan calls for production of 3.5 million b/d of oil by 1985—an increase of nearly 50% over previous estimates. Current Mexican production stands at 2.3 million bbl. Indications are, therefore, that plenty of development drilling is in store. Development of Mexico's offshore reserves will be expedited by the one-a-month delivery of 18 offshore drilling platforms during the next year or so from a new construction facility near Tampico on the Panuco River.

Mexico is able to offer exploratory services to other, less fortunate, countries because it is particularly interested right now in defining the limits of the fields it has already found within its own borders, particularly offshore. Development wells in the Bay of Campeche produce more than 30,000 b/d apiece. Onshore, in the Chiapas-Tabasco area, average production per well is 7,000 b/d.

In Canada, meanwhile, what had appeared to be a long-term boom area for development drilling only a few months ago seems to be turning into a bust. Prime Minister Pierre Elliott Trudeau's proposals for increasing Canadian ownership of oil-company assets have been met with dismay by both the industry and by oil-producing provinces in western Canada. The Canadian Association of Oilwell Drilling Contractors is of the opinion that the situation could result in the drilling of about 5,500 wells in Canada this year, compared with nearly 9,000 in 1980.

And the trouble is not confined to the active drilling areas of western Canada. A row shaping up between Ottawa and Newfoundland over the question of provincial vs federal rights to offshore oil seems certain to delay additional exploratory and development drilling at potentially prolific finds in the Hibernia and Sable Island areas of the North Atlantic Ocean. ■

Beneficiaries of Integrated Oil Companies' Operations			
Employees' pay and benefits after taxes	$ 17.233 billion	EMPLOYEES EARNED	14.6%
Earnings of 44 companies after dividends	$ 10.359 billion	COMPANIES' PROFIT	8.7%
Dividends after taxes paid by stockholders	$ 5.593 billion	INVESTORS RECEIVED	4.7%
Taxes paid by companies/investors/employees and collected from consumers	$ 85.367 billion	GOVERNMENTS' TAKE	72.0%
BOTTOM LINE	$118.552 billion		100.0%



Governments Take 72%

by Ernestine Adams, *Editor, Energy Management Report*
and Julie Fonner, *Assistant Editor*

Governments are the winners, hands down, in oil company operations. In 1979, the 44 companies we surveyed for the fifth year, provided governments (local and national, U.S. and foreign) with a minimum 72% of their take from consumers.

This does not include government revenues from companies handling equipment, services and supplies and their stockholders and employees. They pay as much or more into government coffers as oil companies do.

Purchases of capital goods like refinery units and tanks, services like drilling and pipeline laying, supplies such as chemicals and pencils, make up a major part of an oil company's expense column.

The companies that provide those items are swamped by taxes which their customers have to cover.

"Windfall Profits" tax in the U.S. was not broken out because it did not operate for the full year. It is included in "Other Taxes." The sum of that column rose from $38.6 billion in 1978 to $55.7 billion in 1979.

Governments' take rose a couple of points. It was 70.2% in 1978. Other groups were down slightly percentage-wise, although actual figures were up over 1978.

WHO GOT WHAT FROM 44 OIL COMPANIES' OPERATIONS IN 1979

	COMPANY'S PROFIT	INVESTORS RECEIVED	EMPLOYEES EARNED	GOVERNMENTS' TAKE				
Company	Net income* after dividends ($000)	Dividends (common & preferred) ($000)	Payrolls & Benefits ($000)	Taxes on Dividends[1] ($000)	Taxes on employees' share[2] ($000)	Excise taxes on products[3] ($000)	Other taxes[4] ($000)	Total taxes ($000)
Amerada Hess	·365,920	84,205	186,000[e]	16,841	62,000	98,000[e]	891,920	1,068,761
American Petrofina	32,759	25,214	81,525	5,043	27,175	46,741	74,277	153,236
Ashland Oil	387,315	69,469	524,862	13,894	174,954	266,496	333,227	788,571
Atlantic Richfield	508,761	337,492	1,122,400	67,498	374,133	442,718	1,429,506	2,313,855
Cities Service	159,100	94,200	481,000	18,840	160,333	144,800	382,900	706,873
Clark Oil & Refining	28,412	6,623	90,900	1,325	30,300	134,345	56,488	222,458
Coastal Corp.	77,983	11,249	163,000	2,250	54,333	48,200	82,600	187,383
Conoco Inc.	449,295	183,195	1,059,600	36,639	353,200	203,400	2,749,500	3,342,739
Crown Central Petr.	58,384	6,647	43,591	1,329	14,530	82,204	58,780	156,843
Crystal Oil	6,421	1,906	8,857	381	2,952	0	11,025	14,358
Diamond Shamrock	24,409	76,857	341,000	15,371	113,667	18,348	108,058	255,444
Dorchester Gas	25,105	47	10,946	10	3,649	646	32,747	37,052
Earth Resources	5,963	5,262	21,080	1,052	7,027	9,600	20,640	38,319
Exxon	857,063	1,719,090	4,182,000	343,818	1,394,000	4,448,582	16,906,707	23,093,107
Getty	373,331	116,087	353,765	23,217	117,922	154,787	1,109,787	1,405,713
Gulf Oil	518,000	402,000	1,481,000	80,400	493,667	1,983,000	2,404,000	4,961,067
Holly Corp.	7,023	0	9,402	0	3,134	6,000	5,125	14,259
Husky Oil Ltd.	70,104	11,498	95,400	2,300	31,800	68,600	65,126	167,826
Kerr-McGee Corp.	79,819	40,099	252,000	8,020	84,000	81,000	174,473	347,493
Louisiana Land & Expl.	64,210	52,417	62,819	10,483	20,940	0	164,853	196,276
Mapco Inc.	19,365	26,374	106,000	5,275	35,333	3,915	68,163	112,686
Marathon Oil	125,716	84,773	335,070	16,955	111,690	455,461	983,665	1,567,771
Marion Corp.	17,075	1,086	9,396	217	3,132	0	16,358	19,707
Mobil Corp.	925,556	540,801	3,603,000[e]	108,160	1,201,000	2,764,411	11,932,591	16,006,162
Murphy Oil	78,733	12,424	94,859	2,485	31,620	183,155	235,710	452,970
Occidental Petroleum	303,086	126,780	799,523	25,356	266,508	714	1,514,471	1,807,049
Pacific Resources	9,352	18,227	16,128	3,645	5,376	0	14,636	23,657
Pennzoil Co.	79,682	79,418	219,400	15,884	73,133	28,008	186,342	303,367
Phillips Petroleum	474,167	208,477	863,000	41,695	287,667	156,000	1,394,944	1,880,306
Quaker State	1,419	16,351	94,370	3,270	31,457	18,495	34,170	87,392
Shell Oil	481,159	322,201	1,173,000	64,440	391,000	790,822	1,090,056	2,336,318
Southern Union Co.	6,242	13,912	47,000	2,782	15,667	429	38,190	57,068
Standard California	794,770	494,962	1,120,000	98,992	373,333	990,863	2,347,023	3,810,211
Standard Indiana	621,358	442,630	1,287,854	88,526	429,285	1,267,400	2,016,970	3,802,181
Standard Ohio	892,180	146,968	541,071	29,394	180,357	305,726	1,009,729	1,525,206
Sun Co.	354,700	172,600	979,300	34,520	326,433	459,400	716,200	1,536,553
Tenneco	21,000	259,000	1,500,000[e]	51,800	500,000	260,000	325,000	1,136,800
Tesoro Petroleum	40,189	9,565	61,522	1,913	20,507	20,000	44,988	87,408
Texaco Inc.	608,153	575,458	1,701,800	115,092	567,267	3,116,214	3,770,800	7,569,373
Tipperary Corp.	2,321	0	3,934	0	1,311	0	1,573	2,884
Texas Eastern Corp.	37,336	80,362	120,015	16,072	40,005	0	270,156	326,233
Tosco Corp.	78,028	1,108	92,230	222	30,743	102,428	86,322	219,715
Union California	275,404	112,600	486,300	22,520	162,100	400,852	545,000	1,130,472
United Refining	12,953	2,111	22,906	422	7,635	67,953	17,731	93,741
TOTAL	10,359,321	6,991,745	15,848,825	1,398,348	8,616,275	19,629,713	55,722,527	85,366,863

[1] Taxes on dividends are 1/5; inflation increases tax without a rate increase. [2] Employees' taxes are estimated at 1/3, calculated by Taxpayers' Foundation as the average rate for employed persons. [3] U.S. federal excise tax is 4¢/gallon on gasoline in 1979; state taxes averaged about 8¢/gallon. Other products have lower excise tax. [4] Taxes levied directly on companies: Income taxes (before dividends), property taxes, severance taxes on oil/gas production, sales taxes on goods purchased, tariffs, and "Windfall Profits Taxes." *Excluding non-recurring items. [e] Estimate.

PROFESSIONAL OPPORTUNITIES

"If output is to grow, one of productivity's vital ingredients, the input, of energy, must be available and usable," President John F. Bookout of Shell Oil told a faculty group last spring.

There is no statistical link between energy and productivity but you can see a logical tie. With no energy to run an economy, you have no modern economy.

It is obvious also that productivity of the American worker, and those of other nations, has declined since energy was controlled. In the 1947-1967 period an annual gain of 3.7% was recorded in the U.S. From 1967-1977 average increase came down to 1.8%.

Last year and most of this year the figures see-sawed downward, putting the U.S. in the minus column. Productivity dropped in second quarter of 1980 by an annual rate of 1.9% after a decline of 0.6% in first quarter. That was the sixth decrease in succession. Labor Dept. said U.S. business had a 2.6% rise in productivity for the third quarter.

Company	Professional* Employees 1979	1978	1977
Adams Res. & Energy	150	100	
Altex Oil	3	4	
Amarex Inc.	26	31	34
Amcole Energy	6	12	
Argonaut Energy	13	12	9
Argo Petroleum	22	25	25
Ashland Oil	6,535	7,107	7,296
Brock Exploration	20	20	12
C&K Petroleum	46	40	
Centura Energy	23	23	
Columbia Gas	1,022	1,022	1,022
Commonwealth N.R.	52	52	52
Commonwealth OR	459	416	438
Consolidated N.G.	1,675		
Consolidated O&G	16	9	7
Crystal Oil	229	198	142
Energy Reserves Gp.	220	200	170
Enserch Corp.	7,095	6,263	5,419
Felmont	35	39	37
Forest	250	250	
Galaxy Oil	13	10	12
Hadson Petroleum	24	19	
Helmerich & Payne	194	169	154
Howell Corp.	60	150	140
Inexco Oil	70	60	50
Juniper Petroleum	24	24	21
Louisiana L&E	301		
MGF Oil	80	60	
Mapco Inc.	500	390	350
Marion Corp.	42	36	34
May Petroleum	24	21	8
McMoRan Oil & Gas	105	63	38[e]
Mesa Petroleum	84	75	56
Mitchell Energy	633	575	525
Noble Affiliates	165	150	
Peninsula Resources	12	10	
Petro-Lewis	417	326	246
Phillips Petroleum	7,820	7,150	6,670
Pioneer Corp.	546	530	519
Quaker State	500	515	485
Sabine Corp.	70	60	40
Southland Royalty	199	258	224
Sundance Oil	16		
Supron Energy	56	51	45
Tesoro Petroleum	660	683	717
Texas American	21	18	16
Texas Eastern	650	634	568
Transco Companies	825	745	653
Tribune Oil	3	3	3
United Energy Res.	1,063	923	806
Universal Resources	45	44	35
Vanderbilt Energy	12	10	7
Woods Petroleum	62	67	57
Worldwide Energy	20	20	20
TOTAL	30,426	28,993	27,154

[e] Estimate. *Managers, lawyers, engineers, geologists, accountants, scientists, etc.

An associate director of Commerce Dept.'s Bureau of Economic Analysis puts it succinctly: "Productivity has gone to pot since 1973."

The energy industry needs an influx of professionals--managers, geologists, engineers (all kinds)--and without them we can't get the economy off the ground. Energy operations always need special technology and today it needs it more than ever.

Consulting services here and in other industrialized nations are esstenial to devise plans for oil and gas operations in states where politicians run the energy business.

In earlier days coal ran the economy of industrial states. Now coal industry is limited by deterioration of infrastructure and environmental laws. Getting coal out of the ground and to market is work too hard for current laborers.

Coal is found in every continent, but the U.S. is estimated to have the largest reserves. It is being exported from U.S., however, because regulations have discouraged use. Transportation problems and lack of ports hold down production.

When chief executives of national oil firms from Organization of Petroleum Exporting Countries members met in Vienna, main topics included manpower evaluation and on-the-job training. U.S. problems are multiplied in other countries.

And the U.S. does have shortage problems of professionally trained and experienced people. Some executives wonder if the synfuels program, which will require squadrons of engineers and scientists, can operate with the present supply.

Says one man who should know, "The work load for engineers is going to double."

What this section will strive for is to help fill jobs that increase energy, which will, in turn, increase the hum of the economy.

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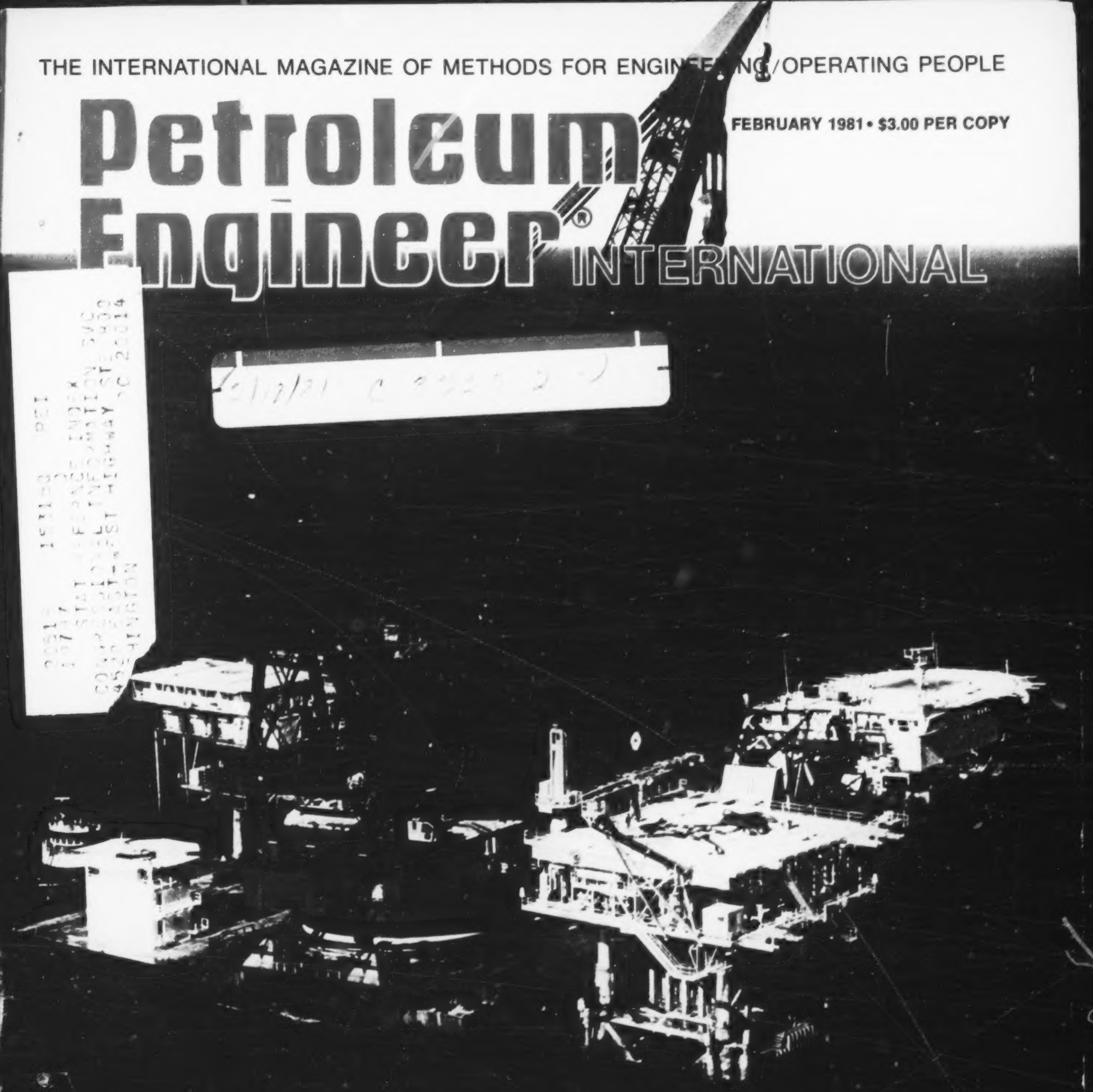

WORLD OFFSHORE FORECAST

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Active Rigs, Completions Set Records In 1980

Boys, 1980 was some year. Drilling in the U.S. set records for both the number of rigs active and for the number of wells completed. And early returns from 1981 activity are so encouraging that some prognosticators already are revising upward earlier predictions that U.S. drillers will set still more records this year.

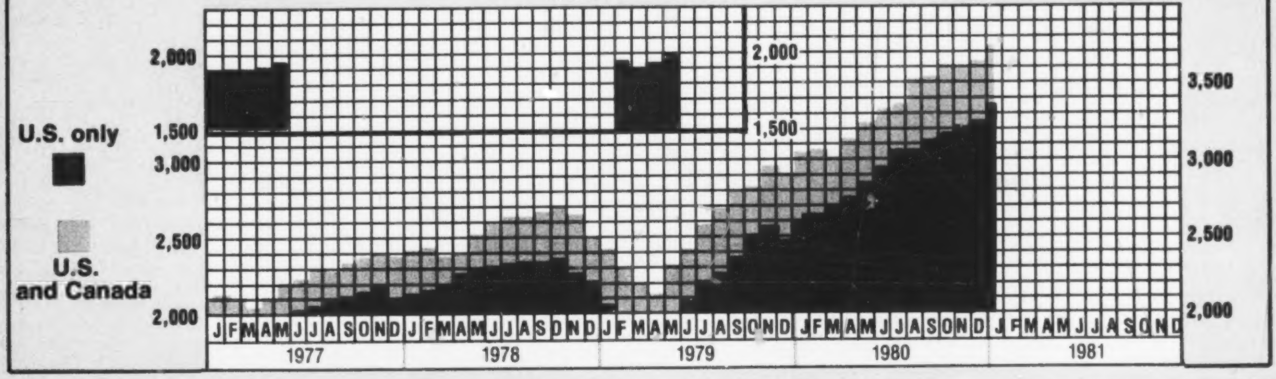
The average rig count last year was 2,916, which was 731 rigs higher than the average for 1979. Preliminary reports put 1980 completions at more than 62,000, much higher than the previous record of 57,111 wells set in 1956.

For Canadian drillers, 1980 will be a year to remember. They averaged a record 403 active rotaries during 1980, but at year-end were dismantling much of what still is the Free World's second largest rig fleet.

Rotary Rigs Actually Making Hole In United States & Canada

As Reported to International Association of Drilling Contractors by Hughes Tool Company

	Dec. 22, 1980	Dec. 30, 1980	Jan. 5, 1981	Jan. 12, 1981
Alabama	9	9	10	14
Alaska				
Land	22	22	22	24
Offshore	1	1	1	2
Arkansas	32	31	33	33
Arizona	1	1	1	1
California				
Land	115	117	122	115
Offshore	21	21	21	21
Total	136	138	143	136
Colorado	67	65	63	64
Florida	3	3	4	5
Georgia				
Land	1	1	1	1
Idaho	2	1	2	1
Illinois	30	30	30	30
Iowa	0	1	0	0
Kansas	158	159	162	161
Kentucky	4	4	3	3
North Louisiana	51	49	51	49
South Louisiana				
Inland Waters	83	82	81	77
Land	160	162	149	166
Offshore	148	146	141	138
Total	442	439	422	430
Maryland	1	1	1	0
Michigan	32	32	32	35
Mississippi	63	66	55	67
Montana	66	63	66	67
Nebraska	14	18	18	15
Nevada	7	7	7	6
New Mexico	128	124	129	128
New York	11	9	9	10
North Dakota	95	96	95	96
Ohio	92	92	92	93
Oklahoma	495	501	510	523
Oregon	1	1	1	1
Pennsylvania	29	31	31	29
Rhode Island				
Land	1	1	1	1
Offshore	2	2	2	2
South Dakota	3	3	3	2
Tennessee	1	0	0	0
Texas				
Offshore	82	82	83	82
Dist. 1	51	51	55	53
Dist. 2	57	52	50	57
Dist. 3	189	191	198	197
Dist. 4	112	113	117	114
Dist. 5 & 6	127	132	128	128
Dist. 7B	87	85	82	80
Dist. 7C	73	69	73	83
Dist. 8	127	119	122	124
Dist. 8A	82	82	73	74
Dist. 9	69	68	73	76
Dist. 10	51	52	47	47
Total	1107	1096	1101	1115
Utah	62	59	61	69
Virginia	1	1	1	1
Washington (State)	1	1	1	1
West Virginia	44	44	44	40
Wyoming	164	173	170	177
Total U.S.	3328	3326	3337	3383
Western Canada	430	339	272	399
Eastern Canada	4	4	4	4
U.S. and Canada	3762	3669	3613	3786



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ABOUT THE COVER: A number of offshore "firsts" were scored by Sun Gas Co. when decks were installed recently on two new platforms in the Gulf of Mexico. For the full story, see p. 51.

NEXT MONTH: The annual Deep Well Report this year is expected to show a substantial gain in number of wells drilled deeper than 15,000 ft in the U.S.

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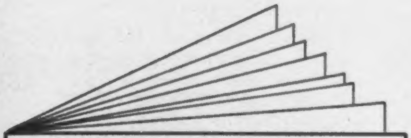

ENERGY management report™

by Ernestine Adams

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$38 Billion Projected For Enhanced Recovery In '80s

Conditions are favorable for normal market forces to encourage continuing expansion in enhanced oil recovery efforts, according to a recent study by Frost & Sullivan Inc. of New York.

Total U.S. expenditures of $38 billion are projected by F&S for enhanced recovery during the 10-year period 1979-88. With EOR technologies accounting for 60 to 70% of the total, F&S breaks down the expenditures as follows:

- Oilfield services, $12.5 billion.
- Oilfield equipment, $11.5 billion.
- Injection fluids, $14 billion.

The domestic U.S. EOR market is projected to expand from $1.65 billion in 1978 to $6.5 billion in 1988, according to Frost & Sullivan, who expect hydraulic displacement methods to decline from a 65% share in 1978 to a 27% share in 1988.

Thermohydraulic methods should reach a 13% share of EOR expenditures in 1988, up from 9% in 1978, and miscible-hydraulic methods should reach a 60% share in 1988, up from 26%. The cost of fuel is not included in F&S's projections, which sharply depresses the thermohydraulic total.

F&S predicts cumulative expenditures and average (compound) growth rates of EOR technologies during the 1979-88 period will be:

- Hydraulic displacement: cumulative expenditures, $13.9 billion; growth rate, 5½%/year.
- Thermohydraulic displacement: expenditures, $4.7 billion; growth, 18½%/year.
- Miscible hydraulic displacement: expenditures, $19.4 billion; growth, 25%/year.

The most important specific EOR technologies in terms of their expenditure-growth are expected by Frost & Sullivan to be nitrogen repressurization, steam drive, CO_2 miscible flooding, and microemulsion flooding. Polymer flooding also is projected to record substantial growth, while in-situ combustion methods are not expected to contribute materially to the total EOR expenditures during this decade.

As indicated in Table 3, F&S looks for oilfield services in support of EOR operations to decline from 48% of total expenditures in 1978 to 29% in 1988. Oilfield equipment is projected to maintain a constant 30% share, while injection fluid expenditures should increase from 22% of the total in 1978 to

TABLE 1. U.S. enhanced recovery production (1978)

EOR method	Production, MM b/d	% Total
Water and gas injection[1]	4.20	90%
Steam injection	0.25	6%
Miscible gas injection[3]	0.11	3%
Other methods[2]	0.04	1%
Total	4.60	55% of total domestic production

1 Includes nonmiscible gas injection (natural gas, inert gas)
2 Includes microemulsion, polymer and caustic flooding, in-situ combustion, other methods
3 Includes CO_2 and hydrocarbon miscible methods

TABLE 2. U.S. EOR market (1978-88) in millions (constant 1978-$)

Market classification	1978	1980	1982	1984	1988
Hydraulic displacement	$1,075	$1,150	$1,225	$1,400	$1,800
Waterflooding	975	1,040	1,100	1,200	1,400
N-G injection	50	30	-	-	-
Inert-gas injection	50	80	125	200	400
Thermohydraulic displacement	$ 150	$ 225	$ 350	$ 500	$ 800
Steam flooding (cyclic and drive)	140	210	325	435	675
In-situ combustion	10	15	25	40	75
Other thermal methods	-	-	-	25	50
Miscible-hydraulic displacement	$ 425	$ 800	$1,225	$1,900	$3,900
CO_2 flooding and H-C miscible	360	675	975	1,350	2,300
Microemulsion flooding	40	75	150	300	1,000
Polymer and caustic flooding	25	50	100	200	425
Other miscible methods	-	-	-	50	175
Total	$1,650	$2,175	$2,800	$3,800	$6,500

TABLE 3. U.S. EOR expenditures (1978-88) in millions (constant 1978-$)

Product category	1978	1980	1982	1984	1988
Oilfield services	$ 800	$ 925	$1,050	$1,225	$1,875
Drilling	325	375	425	500	800
Well maintenance	300	325	350	375	575
Other services	175	225	275	350	500
Oilfield equipment	$ 490	$ 650	$ 850	$1,125	$1,975
Tangible well equipment	250	300	375	450	700
Artificial lift equipment	90	125	175	225	400
Injection equipment	50	75	100	125	225
Other equipment	100	150	200	325	650
Injection fluids	$ 360	$ 600	$ 900	$1,450	$2,650
Gases	335	540	795	1,265	2,100
Chemicals	25	60	105	185	550
Total	$1,650	$2,175	$2,800	$3,800	$6,500

TABLE 4. EOR expenditures by supplier group (1978-88), in millions

Supplier group	1978	1984	1988
Service vendors	$ 800	$1,225	$1,875
Oil tool manufacturers	305	800	1,475
Tubular goods manufacturers	185	325	500
Subtotal	$1,290	$2,350	$3,850
Chemicals manufacturers	$ 15	$ 125	$ 400
Injection gases	335	1,265	2,100
Captive chemicals	10	60	150
EOR Total	$1,650	$3,800	$6,500

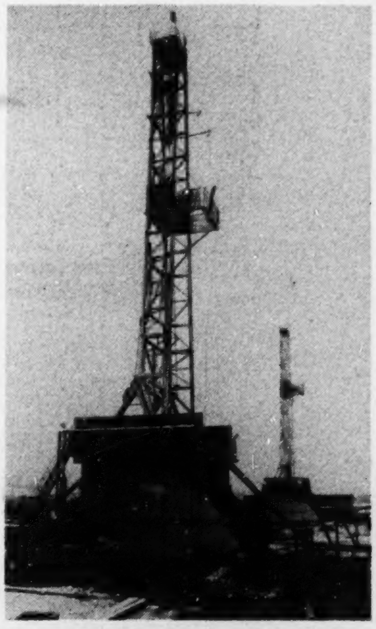
41% in 1988. The expected average annual (compound) growth rates in these EOR classifications are:

- Oilfield services, 9%.
- Oilfield equipment, 15%.
- Injection fluids, 22%.
- Total growth rate, 15%.

In the oilfield services category, other drilling and completion services is expected to be the high-growth component. Other equipment, including fluid-separation equipment, steam generators, and surveillance and control systems, is expected to be the principal growth component under oilfield equipment.

And, injection chemicals are expected to increase their share of the injection fluids total to 21% in 1988, up from 7% in 1978. Nitrogen and carbon dioxide are expected to account for the bulk of the expenditure growth under injection gases.

The overwhelming share of oilfield services and equipment used in enhanced oil recovery projects are traditional oilfield products supplied by traditional oilfield vendors. Frost & Sullivan, therefore, expect all of the suppliers active in the larger oilfield market to participate also in the enhanced recovery submarket. Table 4 shows distribution of the projected EOR expenditures by supplier group for the 1978-88 period.



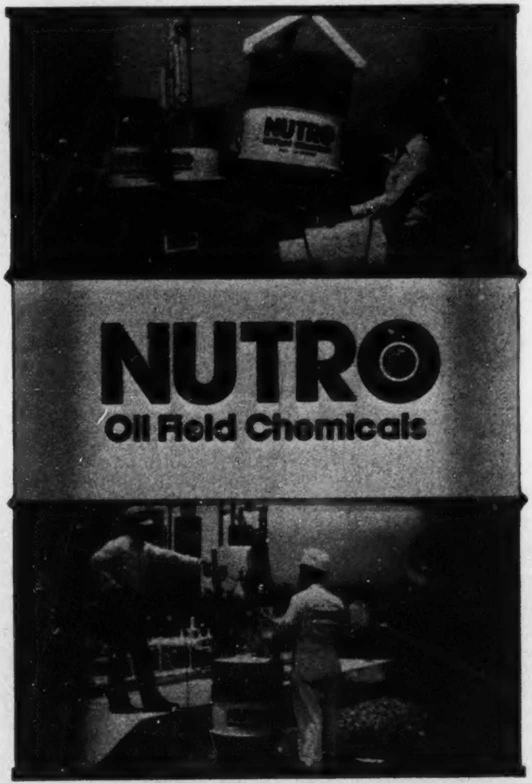
TRG 10, TRG Drilling Corp.'s first 30,000-ft drilling rig, is shown being rigged-up prior to the recent unveiling ceremonies at the TRG yard in Oklahoma City. Rig in the background is a more-conventional rig that TRG is building to drill to depths of up to 20,000 ft.

TRG Drilling Adds Ultradeep Rig

TRG Drilling Corp. unveiled its first ultradeep drilling rig recently at rig-up ceremonies in Oklahoma City, Okla. The rig, TRG 10, stands more than 180 ft high and is capable of drilling to 30,000 ft.

Equipped with a Gardner-Denver 3000E drawworks and a 152-ft Pyramid derrick with 2-million-lb capacity, the rig was constructed by TRG at a cost of about $7.5 million. It is contracted to work first for Mesa Petroleum Co. in western Oklahoma's Anadarko Basin, to where it was moved, following the rig-up ceremonies, on the backs of more than 60 flatbed trailer trucks.

BOP equipment on the big rig includes a Shaffer 13⅝-in. 10,000-psi LWS with Hydril six-station, 165-gal closing unit with 4-in. 10,000-psi manifold. An SCR rig, TRG 10 is powered by three Caterpillar D-399 TA engines



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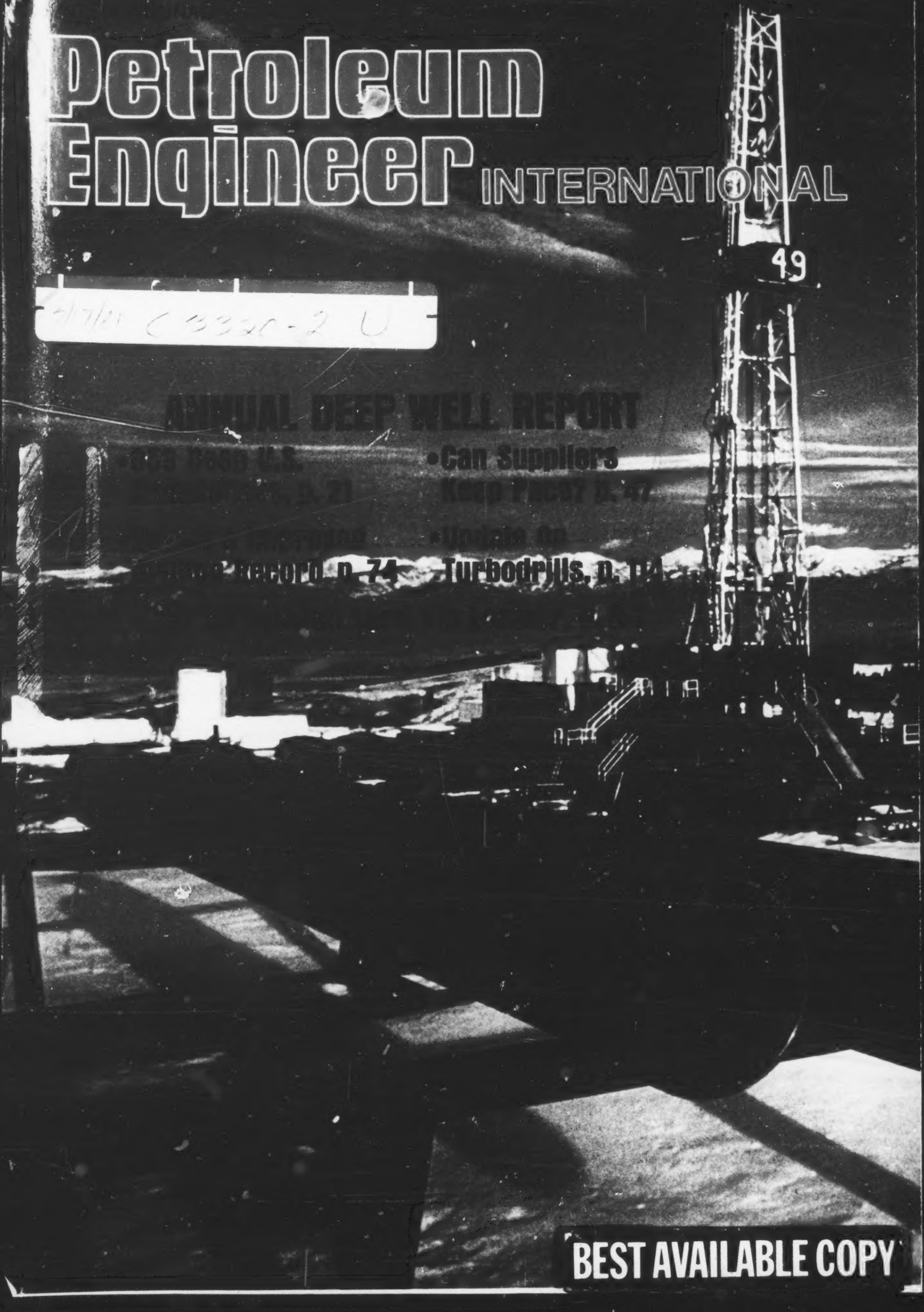

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U.S. Drillers Keep The Pace

Rotary drillers in the U.S. are maintaining the pace that led to record-breaking totals last year, according to rig counts issued each week by Hughes Tool Co., Houston, Tex.

Average rig activity through the middle of last month averaged 3,415, which is 499 rigs above the overall average for 1980. Canadian drillers are represented by respectable totals in the accompanying table, but their average so far this year is just one rig higher than 1980's yearlong average of 403.

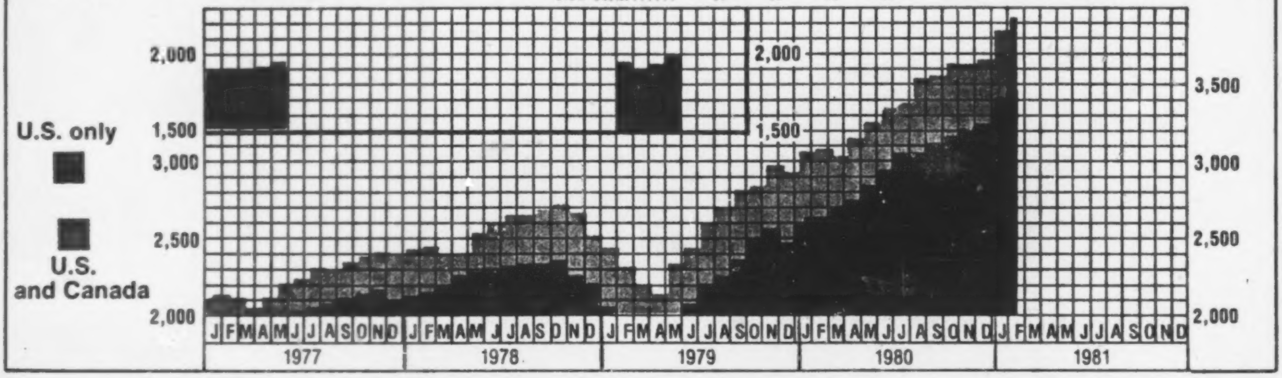
In the U.S. meanwhile, no fewer than eight states have rig counts that are in three figures, with Texas way out in front with solid four-figure totals. In addition, four Texas districts are in triple figures.

Oklahoma is the second-most active drilling state, and its count is steadily approaching 600.

Rotary Rigs Actually Making Hole In United States & Canada

As Reported to International Association of Drilling Contractors by Hughes Tool Company

	Jan. 19, 1981	Jan. 26, 1981	Feb. 2, 1981	Feb. 9, 1981
Alabama	14	13	16	12
Alaska				
Land	24	24	24	24
Offshore	3	2	1	1
Arkansas	33	35	34	32
Arizona	1	1	1	1
California				
Land	117	117	122	122
Offshore	21	21	18	18
Total	138	138	140	140
Colorado	64	81	63	67
Florida	6	6	4	8
Georgia				
Land	1	1	1	0
Hawaii	0	0	0	1
Idaho	1	1	1	1
Illinois	30	30	30	30
Kansas	171	172	173	173
Kentucky	3	3	3	3
North Louisiana	50	51	56	56
South Louisiana				
Inland Waters	75	74	81	79
Land	163	176	180	172
Offshore	136	135	132	140
Total	424	436	449	447
Maryland	1	1	1	1
Michigan	35	35	34	34
Mississippi	64	65	59	64
Montana	71	78	84	80
Nebraska	14	5	10	11
Nevada	10	7	8	6
New Mexico	131	126	127	127
New York	10	10	11	11
North Dakota	105	107	104	106
Ohio	94	94	92	93
Oklahoma	527	536	551	564
Oregon	1	1	1	1
Pennsylvania	30	30	27	27
Rhode Island				
Land	1	1	1	1
Offshore	2	2	2	2
South Dakota	2	2	2	2
Texas				
Offshore	78	76	74	73
Dist. 1	62	56	58	62
Dist. 2	54	56	46	49
Dist. 3	191	202	211	210
Dist. 4	110	109	114	120
Dist. 5 & 6	134	138	137	138
Dist. 7B	69	71	79	80
Dist. 7C	84	86	82	78
Dist. 8	122	122	136	136
Dist. 8A	80	75	67	75
Dist. 9	77	76	75	77
Dist. 10	47	46	46	44
Total	1108	1113	1125	1142
Utah	63	65	64	64
Virginia	1	1	1	1
Washington	1	1	1	1
West Virginia	36	36	38	39
Wyoming	171	175	168	178
Total U. S.	3391	3434	3451	3495
Western Canada	435	422	429	444
Eastern Canada	4	4	4	4
U. S. and Canada	3830	3860	3884	3943



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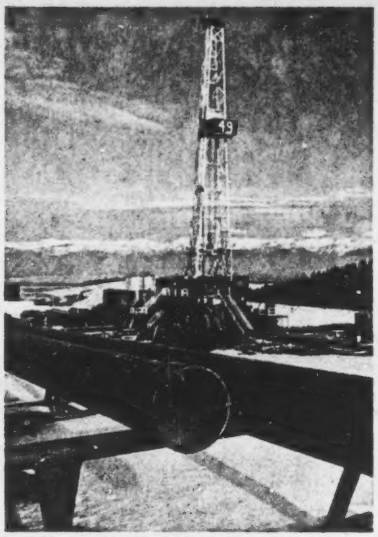

ABOUT THE COVER: With the Grand Tetons as a backdrop, Bomac Drilling Co.'s Rig 49 drills in the remote Overthrust Belt. (Photo courtesy of W. R. Grace & Co.)

NEXT ISSUE: The Ocean Technology Report on March 15 will look at the continuing trend toward operations in more-hostile waters.

(Note: In our description of the cover for the February 1981 issue, we neglected to mention that the photo was supplied by Sun Gas Co.)

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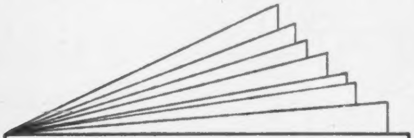

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Deep Wells, Costs At Record Levels In 1980

by Rich McNally, *Associate Editor,*
and Mary Jane Ellis, *Assistant Editor*

U.S. deep drilling increased by almost 40% during 1980 as operators completed a record total of 859 wells that went to 15,000 ft or deeper. But they paid the price.

PETROLEUM ENGINEER INTERNATIONAL's annual Deep Well Report puts total cost of U.S. deep drilling (which had taken almost 40 years to reach the $1 billion/year level in 1977) at just under $4 billion last year. That is a 75% increase over 1979, and it can't all be traced to the 38% increase in number of deep wells because the cost per well rose by 26% in 1980. Deep wells last year cost an average of $4.56 million apiece to drill and complete.

For the purposes of this report, completions are defined as wells that have reached total depth, regardless of whether production equipment has been installed. In some instances, therefore, success ratios listed in the accompanying tables may be low. All wells that reached total depth in 1980 are included, although some of the ones listed as dry holes were still being tested as this issue went to press. Their classification, therefore, could change when final test results are in.

TABLE 1. U.S. deep drilling
Wells drilled to 15,000 ft or deeper

		1980 (859 wells)	1979 (621 wells)	1978 (600 wells)
Average well depth		17,178 ft	17,246 ft	17,140 ft
Average cost/well		$4,560 ($265.47/ft)	$3,599 ($208.68/ft)	$2,587 ($150.93/ft)
Average mud cost/well		$479 ($27.88/ft)	$414 ($23.99/ft)	$254 ($14.81/ft)
Average bits/well		31.6 (544 ft/bit)	29.7 (581 ft/bit)	29.2 (587 ft/bit)
Success ratio		53.8%	44.9%	47.3%
Wildcat success ratio		39.3% (433 wells)	27.4% (248 wells)	31.7% (303 wells)
Development success ratio		68.5% (426 wells)	56.6% (373 wells)	63.3% (297 wells)
Total costs:	Mud	$ 411,380	$ 256,962	$ 152,861
	Drilling	$ 3,266,302	$1,819,545	$1,180,168
	Completion	$ 593,843	$ 359,338	not reported
	Total	$ 3,917,118	$2,234,891	$1,556,638
	Total footage	14,755,480	10,709,644	10,352,560

(Cost in thousand dollars except dollars per foot)

In a record overall drilling year that saw total footage drilled in the U.S. increase by 10.7%, deep well footage was up 37.7%, despite a slight drop in the average depth of deep wells. Deep drilling accounted for 1.3% of all U.S. wells last year, but deep well footage comprised 5% of all footage.

On a state-by-state basis, Louisiana continues to be the leading deep drilling state, with its 304 deep 1980 wells accounting for 6% of all wells drilled in the state last year. Texas was the second leading deep well state, but its 186 deep wells accounted for only 0.9% of that state's completions. Oklahoma also was close to the national percentage, with 145 deep completions that accounted for 1.6% of the year's wells.

Louisiana's total includes 63 offshore deep wells, which gives the Pelican State the lead in that category, as well. Texas, the runner-up offshore, completed only 10 wells there in 1980. In all, there were 77 deep wells drilled offshore last year, and they cost an average of $7.4 million apiece. Total cost of deep drilling offshore came to $571 million.

New Jersey rounded out the deep activity offshore last year with four wells. This brings the number of deep wells drilled in the Baltimore Canyon area since drilling started there in 1978 to 16 — 12 of them dry holes. Total cost of the 16 wells is $248 million, or $15.5 million each. Deep wells offshore Louisiana and Texas, on the other hand, were completed at an average cost of $6.8 million last year.

Another active deep drilling state is Mississippi, which topped 100 deep completions for the first time in 1980, although it had come close in 1978 with 91 wells. Mississippi and Alabama continue to be the most economical states in which to drill deep, which may be why almost 20% of Mississippi's wells are deep. A more probable reason, however, is that they're drilling deep in Mississippi because that's where the Cretaceous and Jurassic gas formations lie. Another reason is that the success ratio for development drilling is pretty good — at least in Mississippi. Wildcatting in the two states is a chancy business — mostly because of the elusive nature of the deep Smackover.

The overall success ratio for deep drilling in the U.S. climbed back above 50% in 1980 after having been below that mark for 3 years. The success ratio for development wells (68.5%) was the highest it's been in 4 years, and so was the wildcat success ratio (39.3%).

Ultradeep wells — those drilled to 20,000 ft or deeper — also were successful more than half of the time last year. There were 81 ultradeep wells completed last year and, although they are included among the 859 deep wells discussed in this article, they are covered in a separate article in this issue of

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Wells completed 15,000 ft and below by years of completion

Year	No. wells by date of completion	Explor-atory	Total producers	Average bits/well	Mud costs average	Well costs average	Average costs/ft	Total footage drilled	Average ft/well	New records Deepest well	New records Deepest producer
1938	1	1	1	–	–	–	–	15,004	–	15,004	13,175
1944	1	1	0	–	–	–	–	15,279	–	15,279	–
1945	3	3	0	222	–	–	–	63,480	15,870	16,655	–
1946	1	1	1	–	–	–	–	15,452	–	–	–
1947	8	8	1	181	$ 24,000	$ 570,000	$ 35.87	127,128	15,891	17,823	13,904
1948	7	6	2	303	28,000	551,000	34.34	112,329	16,047	–	14,255
1949	11	8	5	199	64,000	534,000	32.52	180,631	16,421	20,521	15,530
1950	5	2	3	181	63,000	557,000	36.72	78,565	15,713	–	–
1951	12	5	6	116	54,000	527,000	33.56	189,864	15,822	–	–
1952	25	17	9	138	66,000	549,000	34.77	396,850	15,874	–	16,012
1953	25	14	20	159	75,000	729,000	44.79	402,936	16,177	21,482	17,895
1954	56	30	31	117	92,000	651,000	40.87	892,021	15,929	–	–
1955	98	63	43	87	116,000	649,000	40.09	1,587,008	16,031	22,559	–
1956	155	77	78	89	122,000	683,000	42.18	2,510,050	15,988	–	20,745
1957	185	114	89	89	121,000	743,000	46.25	2,987,841	16,064	–	–
1958	197	136	100	79	107,000	692,000	43.18	3,171,762	16,019	–	–
1959	228	142	119	71	83,000	650,000	40.48	3,660,857	16,056	25,340	–
1960	242	134	136	66	86,000	675,000	42.50	3,858,622	15,945	–	–
1961	243	84	153	63	81,000	614,000	38.07	3,918,324	16,124	–	–
1962	254	74	130	63	92,000	654,000	38.00	4,414,300	17,000	–	–
1963	271	96	128	52	97,246	696,000	42.85	4,401,363	16,241	–	21,410
1964	308	141	150	51	95,507	653,256	39.33	5,115,938	16,610	–	21,793
1965	330	117	156	59	90,160	610,784	36.50	5,522,541	16,735	–	22,098
1966	388	130	149	71	84,007	727,996	42.20	6,693,785	17,252	–	22,483
1967	402	142	192	66.8	96,375	762,676	45.29	6,769,371	16,839	–	–
1968	406	150	194	65	100,305	889,991	52.13	6,931,232	17,072	–	22,790
1969	389	116	206	53.6	101,529	866,349	50.19	6,619,216	17,016	–	–
1970	381	168	189	53.7	117,874	999,343	57.87	6,579,870	17,270	25,600	–
1971	417	149	210	60.3	146,049	949,959	54.81	7,227,444	17,332	–	–
1972	506	230	290	43.6	103,507	919,484	54.21	8,513,278	16,963	30,050	22,548
1973	506	213	272	37.7	122,067	1,107,059	63.58	8,810,918	17,413	–	–
1974	446	220	258	36.9	168,426	1,456,522	84.08	7,726,058	17,323	31,441*	–
1975	410	191	190	37	197,279	1,901,017	109.80	7,098,330	17,313	–	–
1976	439	186	255	32.8	214,276	2,112,509	121.98	7,603,041	17,319	–	–
1977	476	233	233	30.4	221,490	2,205,954	127.58	8,230,040	17,290	–	26,566**
1978	604	306	288	29.2	253,082	2,577,216	150.60	10,299,285	17,140	–	–
1979	621	248	279	29.7	414,000	3,599,000	208.68	10,709,644	17,246	–	–
1980	**859**	**433**	**462**	**31.6**	**$478,906**	**$4,560,090**	**$265.47**	**14,755,480**	**17,178**	**31,441**	**26,566**

*This is the all-time record depth hole, completed in Oklahoma's Anadarko Basin in May 1974 by Lone Star Producing Co.

**Chevron USA established the record depth production mark in 1977 with completion of No. 1 Ledbetter in Wheeler County, Texas. Gage was 2,500,000 cfd from the Arbuckle at 23,427-26,518 ft.

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Also featured in this issue of PEI is the annual Deep Well Map, which indicates that 159 operators were responsible for 1980's deep wells. This comes to an average of 5.4 wells per operator, but most operators were content with three or fewer wells during the year. Only one operator drilled as many as 40 wells, three were in the 30's range, and a fourth drilled 21 wells. The number of operators in 1980 was an increase of 31 over 1979.

Oklahoma, the third most active deep-drilling state, was also among the leaders in successful drilling, with only 40 of the state's 145 wells ending up in the dry category. One of the dry holes, however, was the Harrell No. 1-2, the year's deepest well. It was drilled to 26,500 ft by GHK Corp. in Washita County.

Deep drilling's bargain basement of 1980 appears to be New Mexico, where 86.7% of the year's deep wells were successful. Ten of 11 wildcats found success, as did three out of four development wells. And, average cost per well was lower than in any state except Mississippi and Alabama.

Most costly state for deep drilling, of course, continues to be Alaska. It is also one of the most unrewarding states. Alaska's 0 for 5 last year was topped only by California, which went 0 for 6. California's deep wells, however, cost only a little more than $3 million apiece. Deep drilling in Alaska is to the tune of $26.5 million/well.

Such comparisons are unfair, of course, because deep drilling in Alaska is something else. Extreme weather conditions, sensitivities of the environment, and special transportation and logistic requirements increase drilling costs considerably. In addition, drilling in such a frontier area calls for considerable coring and sampling for stratigraphic, geochemical, and paleontological studies, which must be charged to drilling costs. Other items included in Alaskan exploration budgets are barging of supplies, maintenance of base camps, and provision of independent communications networks and air support systems to service the remote drilling sites. Many of the same conditions prevail at drilling sites in the Baltimore Canyon offshore New Jersey, and they account for the high well costs there as well.

Nevada joined the ranks of deep well states last year, but, statistically, at least, it was not a particularly auspicious debut. The Sagebrush State's one deep well (almost an ultradeep well) was dry, and its cost was higher than the average for land wells in any of the 48 contiguous states.

Cost per well in Wyoming was only slightly lower than that for Nevada's well, but 81.6% of Wyoming's deep wells were successful.

Florida is another hospitable state for deep drillers. Success ratios there have been higher than 50% ever since 1977, and last year the state batted 1,000, with 4 for 4. Average cost per well in Florida in 1980 was only slightly higher than California's. Average mud cost in Florida was less than half of the national average, and bit usage was the lowest of any deep drilling state. All four Florida wells were development wells, and they averaged 16,043 ft in depth.

Nationally, what had been a steady decline in bits per deep well since the mid-1950s seems to have leveled off in the last two years, and may even be headed back up. In the 20-year stretch from 1957 to 1977, bit usage per deep well dropped 66% to prompt dreams of a Texas Rangeresque "one well, one bit" rate by the 1990s.

Stepped-up drilling in the rugged Overthrust Belt is receiving much of the blame for today's "one well, 31 bits" rate, but work currently underway on bit hydraulics and with artificial diamond inserts could turn the bit picture around again within the next few years.

Another continuing trend highlighted by the Deep Well Report is a steady increase in expenditures for drilling mud. From under $10/ft as recently as 1974, mud costs rose to more than $30/ft in 1980. Mud cost for a deep well in 1974 averaged $168,426. Last year, average mud cost/well came to $479,000.

Most credit for the surge in deep drilling activity in the U.S. during the past few years (from 604 in 1978 to 859 in 1980) has been given to the Natural Gas Policy Act of 1978 that removed price controls for gas produced from below 15,000 ft. This tipped the scale away from drilling for oil which, as we all know, had been under price controls since the early 1970s. President Reagan's decontrol of U.S. crude oil prices earlier this year, however, threatens to tip the scale back toward drilling for oil because wellhead prices for natural gas are much lower than oil prices on a Btu basis. As pointed out in ENERGY NEWS last month, the schedule of gas price decontrol set up by the 1978 Act promises some, but not all, gas may be decontrolled in 1985. This means gas is likely to get progressively cheaper in relation to oil during the next 4 or 5 years. Unless President Reagan also acts to decontrol gas prices, therefore, last year's 859 deep completions may be the high-water mark for some time to come. Given a choice between drilling for deep, uncontrolled gas or for uncontrolled oil at any depth, most operators now will opt for oil because the deep gasser will cost 10 times as much to drill and complete as will the average oil well.

Location of 1980 wells 15,000 ft and deeper

State	Wells	Average bits/well	Average cost/well	Average mud cost/well
Alabama	26	18.7	$ 2,365,384	$ 184,615
Alaska	5	89.4	26,555,600	1,003,400
California	6	61.5	3,105,000	468,333
Colorado	1	24.0	3,700,000	380,000
Florida	4	15.0	3,127,000	206,250
Louisiana*	304	33.6	5,244,901	626,680
Mississippi	113	23.6	2,736,345	253,318
Nevada	1	41.0	6,854,000	449,000
New Jersey	4	40.0	17,843,000	592,750
New Mexico	15	21.5	2,812,733	308,733
Oklahoma	145	29.5	4,049,386	363,186
Texas*	186	29.3	4,172,569	476,268
Utah	11	57.1	5,974,090	613,727
Wyoming	38	50.9	6,183,000	604,263

*Includes offshore

TABLE 2. Alabama deep drilling
Wells drilled to 15,000 ft or deeper

	1980 (26 wells)	1979 (25 wells)	1978 (20 wells)
Average well depth	17,475 ft	17,808 ft	18,429 ft
Average cost/well	$2,365 ($135.36/ft)	$2,273 ($127.66/ft)	$1,789 ($97.06/ft)
Average mud cost/well	$185 ($10.56/ft)	$202 ($11.33/ft)	$183 ($9.93/ft)
Average bits/well	18.7 (933 ft/bit)	18.4 (968 ft/bit)	19.5 (943 ft/bit)
Success ratio	30.8%	44%	45%
Wildcat success ratio	16.7% (12 wells)	11.1% (9 wells)	16.7% (6 wells)
Development success ratio	42.9% (14 wells)	62.5% (16 wells)	57.1% (14 wells)
Total costs: Mud	$ 4,800	$ 5,044	$ 3,661
Drilling	$50,106	$49,550	$23,692
Completion	$10,533	$ 6,895	not reported
Total	$61,500	$56,836	$35,772
Total footage	454,359	445,201	368,580

(Cost in thousand dollars except dollars per foot)

TABLE 3. Alaska deep drilling
All wells drilled to 15,000 ft or deeper

	1980 (5 wells)	1979 (1 well)	1978 (2 wells)
Average well depth	16,700 ft	20,102 ft	15,709 ft
Average cost/well	$26,556 ($1,590/ft)	$38,000 ($1,890/ft)	$17,700 ($1,126/ft)
Average mud cost/well	$1,003 ($60.08/ft)	$1,700 ($84.57/ft)	$526 ($33.49/ft)
Average bits/well	89.4 (187 ft/bit)	111.0 (181 ft/bit)	102.0 (154 ft/bit)
Success ratio	0%	0%	0%
Wildcat success ratio	0% (5 wells)	0% (1 well)	0% (2 wells)
Development success ratio	0% (0 wells)	0% (0 wells)	0% (0 wells)
Total costs: Mud	$ 5,017	$ 1,700	$ 1,052
Drilling	$121,098	$13,400	$21,000
Completion	$ 8,412	$ 0	not reported
Total	$132,778	$38,000	$35,400
Total footage	83,501	20,102	31,418

(Cost in thousand dollars except dollars per foot)

Note: PETROLEUM ENGINEER INTERNATIONAL has been analyzing U.S. deep drilling on an annual basis since 1944. Base data are acquired from various industry sources, including contract drilling companies and Petroleum Information Corp., Denver, Colo. Operating companies confirm the wells and, through a special arrangement with PEI, provide cost data on a confidential basis. Mary Jane Ellis compiled the data for this report, which was written by Rich McNally.

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TABLE 4. California deep drilling
All wells drilled to 15,000 ft or deeper

		1980 (6 wells)	1979 (1 well)	1978 (3 wells)
Average well depth		16,515 ft	15,059 ft	18,459 ft
Average cost/well		$3,105	$1,500	$5,436
		($188.01/ft)	($99.61/ft)	($294.47/ft)
Average mud cost/well		$468	$230	$765
		($28.36/ft)	($15.27/ft)	($41.44/ft)
Average bits/well		61.5	50.0	63.0
		(269 ft/bit)	(301 ft/bit)	(293 ft/bit)
Success ratio		0%	0%	0%
Wildcat success ratio		0%	0%	0%
		(6 wells)	(1 well)	(3 wells)
Development success ratio		0%	0%	0%
		(0 wells)	(0 wells)	(0 wells)
Total costs:	Mud	$ 2,810	$ 230	$ 2,295
	Drilling	$18,285	$1,500	$14,902
	Completion	$ 151	$ 0	not reported
	Total	$18,630	$1,500	$16,307
	Total footage	99,091	15,059	53,377

(Cost in thousand dollars except dollars per foot)

TABLE 5. Colorado deep drilling
All wells drilled to 15,000 ft or deeper

		1980 (1 well)	1979 (0 wells)	1978 (0 wells)
Average well depth		15,000 ft	0	0
Average cost/well		$3,700	0	0
		($246.67/ft)		
Average mud cost/well		$380	0	0
		($25.33/ft)		
Average bits/well		24.0	0	0
		(625 ft/bit)		
Success ratio		100%	0	0
Wildcat success ratio		0%	0	0
		(0 wells)		
Development success ratio		100%	0	0
		(1 well)		
Total costs:	Mud	$ 380		
	Drilling	$3,100		
	Completion	$ 600		
	Total	$3,700		
	Total footage	15,000		

(Cost in thousand dollars except dollars per foot)

TABLE 6. Florida deep drilling
All wells drilled to 15,000 ft or deeper

		1980 (4 wells)	1979 (7 wells)	1978 (12 wells)
Average well depth		16,043 ft	15,862 ft	15,929 ft
Average cost/well		$3,127	$2,678	$1,666
		($194.91/ft)	($168.80/ft)	($104.57/ft)
Average mud cost/well		$206	$160	$104
		($12.86/ft)	($10.06/ft)	($6.50/ft)
Average bits/well		15.0	13.6	12.6
		(1,070 ft/bit)	(1,169 ft/bit)	(1,266 ft/bit)
Success ratio		100%	71.4%	50%
Wildcat success ratio		0%	0%	0%
		(0 wells)	(0 wells)	(4 wells)
Development success ratio		100%	71.4%	75%
		(4 wells)	(7 wells)	(8 wells)
Total costs:	Mud	$ 825	$ 1,117	$ 1,242
	Drilling	$ 9,671	$16,149	$17,865
	Completion	$ 2,837	$ 1,694	not reported
	Total	$12,508	$18,743	$19,987
	Total footage	64,173	111,036	191,148

(Cost in thousand dollars except dollars per foot)

TABLE 7. Louisiana land deep drilling
All wells drilled to 15,000 ft or deeper

		1980 (241 wells)	1979 (179 wells)	1978 (153 wells)
Average well depth		17,378 ft	17,248 ft	17,135 ft
Average cost/well		$4,931	$3,707	$2,353
		($283.78/ft)	($214.94/ft)	($137.30/ft)
Average mud cost/well		$636	$496	$296
		($36.60/ft)	($28.77/ft)	($17.28/ft)
Average bits/well		33.9	31.9	30.6
		(513 ft/bit)	(541 ft/bit)	(560 ft/bit)
Success ratio		43.2%	37.4%	43.1%
Wildcat success ratio		26.5%	12.3%	27%
		(132 wells)	(57 wells)	(74 wells)
Development success ratio		63.3%	49.2%	58.2%
		(109 wells)	(122 wells)	(79 wells)
Total costs:	Mud	$ 153,300	$ 88,809	$ 45,315
	Drilling	$ 977,781	$553,101	$241,174
	Completion	$ 190,877	$ 99,332	not reported
	Total	$1,188,491	$663,596	$359,957
	Total footage	4,188,024	3,087,347	2,621,655

(Cost in thousand dollars except dollars per foot)

TABLE 8. Louisiana offshore deep drilling
All wells drilled to 15,000 ft or deeper

		1980 (63 wells)	1979 (40 wells)	1978 (20 wells)
Average well depth		16,342 ft	16,259 ft	16,554 ft
Average cost/well		$6,444	$5,032	$3,688
		($394.30/ft)	($309.49/ft)	($222.79/ft)
Average mud cost/well		$591	$497	$310
		($36.14/ft)	($30.58/ft)	($18.71/ft)
Average bits/well		33.3	28.5	30.0
		(491 ft/bit)	(570 ft/bit)	(551 ft/bit)
Success ratio		41.3%	45%	45%
Wildcat success ratio		32.4%	11.8%	33.3%
		(37 wells)	(17 wells)	(9 wells)
Development success ratio		53.8%	69.6%	54.5%
		(26 wells)	(23 wells)	(11 wells)
Total costs:	Mud	$ 37,211	$ 19,888	$ 6,195
	Drilling	$363,904	$177,241	$57,078
	Completion	$ 35,169	$ 22,546	not reported
	Total	$405,959	$201,277	$73,763
	Total footage	1,029,573	650,346	331,080

(Cost in thousand dollars except dollars per foot)

TABLE 9. Mississippi deep drilling
All wells drilled to 15,000 ft or deeper

		1980 (113 wells)	1979 (73 wells)	1978 (91 wells)
Average well depth		17,058 ft	17,025 ft	17,142 ft
Average cost/well		$2,736	$2,092	$1,746
		($160.41/ft)	($122.87/ft)	($101.87/ft)
Average mud cost/well		$253	$295	$159
		($14.85/ft)	($17.35/ft)	($9.29/ft)
Average bits/well		23.6	22.1	24.3
		(724 ft/bit)	(770 ft/bit)	(707 ft/bit)
Success ratio		42.5%	42.5%	38.5%
Wildcat success ratio		20.8%	20.7%	14.3%
		(48 wells)	(29 wells)	(42 wells)
Development success ratio		58.5%	56.8%	59.2%
		(65 wells)	(44 wells)	(49 wells)
Total costs:	Mud	$ 28,625	$ 21,559	$ 14,487
	Drilling	$242,025	$116,537	$121,087
	Completion	$ 64,421	$ 35,934	not reported
	Total	$309,207	$152,700	$158,907
	Total footage	1,927,570	1,242,808	1,559,922

(Cost in thousand dollars except dollars per foot)

TABLE 10. Nevada deep drilling
All wells drilled to 15,000 ft or deeper

	1980 (1 well)	1979 (0 wells)	1978 (0 wells)
Average well depth	19,562 ft	0	0
Average cost/well	$6,854	0	0
	($350.37/ft)		
Average mud cost/well	$449	0	0
	($22.95/ft)		
Average bits/well	41.0	0	0
	(477 ft/bit)		
Success ratio	0%	0	0
Wildcat success ratio	0%	0	0
	(0 wells)		
Development success ratio	0%	0	0
	(1 well)		
Total costs: Mud	$ 449		
Drilling	$6,854		
Completion	0		
Total	$6,854		
Total footage	19,562		

(Cost in thousand dollars except dollars per foot)

TABLE 11. New Jersey offshore deep drilling
All wells drilled to 15,000 ft or deeper

	1980 (4 wells)	1979 (7 wells)	1978 (5 wells)
Average well depth	17,028 ft	17,210 ft	17,230 ft
Average cost/well	$17,843	$13,044	$17,160
	($1,047.87/ft)	($757.96/ft)	($995.96/ft)
Average mud cost/well	$593	$604	$752
	($34.81/ft)	($35.11/ft)	($43.65/ft)
Average bits/well	40.0	55.4	50.0
	(426 ft/bit)	(310 ft/bit)	(345 ft/bit)
Success ratio	25%	28.6%	20%
Wildcat success ratio	25%	28.6%	20%
	(4 wells)	(7 wells)	(5 wells)
Development success ratio	0%	0%	0%
	(0 wells)	(0 wells)	(0 wells)
Total costs: Mud	$ 2,371	$ 4,230	$ 3,760
Drilling	$66,372	$73,294	$73,100
Completion	$ 5,000	$18,015	not reported
Total	$71,372	$91,309	$85,800
Total footage	68,111	120,467	86,150

(Cost in thousand dollars except dollars per foot)

TABLE 12. New Mexico deep drilling
All wells drilled to 15,000 ft or deeper

	1980 (15 wells)	1979 (7 wells)	1978 (4 wells)
Average well depth	16,638 ft	16,198 ft	15,679 ft
Average cost/well	$2,813	$2,105	$1,854
	($169.05/ft)	($129.96/ft)	($118.22/ft)
Average mud cost/well	$309	$225	$140
	($18.56/ft)	($13.92/ft)	($8.91/ft)
Average bits/well	21.5	25.0	31.3
	(775 ft/bit)	(648 ft/bit)	(502 ft/bit)
Success ratio	86.7%	71.4%	75%
Wildcat success ratio	90.9%	75%	66.6%
	(11 wells)	(4 wells)	(3 wells)
Development success ratio	75%	66.7%	100%
	(4 wells)	(3 wells)	(1 well)
Total costs: Mud	$ 4,631	$ 1,578	$ 559
Drilling	$34,630	$10,855	$5,560
Completion	$ 6,396	$ 3,881	not reported
Total	$42,191	$14,736	$7,414
Total footage	249,572	113,386	62,716

(Cost in thousand dollars except dollars per foot)

TABLE 13. Oklahoma deep drilling
All wells drilled to 15,000 ft or deeper

	1980 (145 wells)	1979 (127 wells)	1978 (100 wells)
Average well depth	17,221 ft	17,143 ft	16,975 ft
Average cost/well	$4,049	$3,201	$2,582
	($235.14/ft)	($186.70/ft)	($152.13/ft)
Average mud cost/well	$363	$366	$234
	($21.09/ft)	($21.33/ft)	($13.79/ft)
Average bits/well	29.5	29.2	28.5
	(584 ft/bit)	(587 ft/bit)	(596 ft/bit)
Success ratio	72.4%	54.3%	58%
Wildcat success ratio	60.5%	48.7%	54.2%
	(43 wells)	(39 wells)	(48 wells)
Development success ratio	77.5%	56.8%	61.5%
	(102 wells)	(88 wells)	(52 wells)
Total costs: Mud	$ 52,662	$ 46,438	$ 23,407
Drilling	$460,533	$331,828	$192,492
Completion	$121,878	$ 65,735	not reported
Total	$587,161	$406,496	$255,369
Total footage	2,497,022	2,177,211	1,697,500

(Cost in thousand dollars except dollars per foot)

TABLE 14. Texas land deep drilling
All wells drilled to 15,000 ft or deeper

	1980 (176 wells)	1979 (101 wells)	1978 (152 wells)
Average well depth	17,382 ft	17,554 ft	17,276 ft
Average cost/well	$3,876	$2,956	$2,445
	($222.98/ft)	($168.39/ft)	($141.53/ft)
Average mud cost/well	$448	$329	$258
	($25.75/ft)	($18.76/ft)	($14.91/ft)
Average bits/well	28.3	25.9	27.0
	(614 ft/bit)	(677 ft/bit)	(640 ft/bit)
Success ratio	64.8%	52.5%	50%
Wildcat success ratio	57.3%	38.5%	33.7%
	(103 wells)	(52 wells)	(83 wells)
Development success ratio	75.3%	67.3%	69.6%
	(73 wells)	(49 wells)	(69 wells)
Total costs: Mud	$ 78,767	$ 33,253	$ 18,363
Drilling	$560,170	$244,708	$162,594
Completion	$108,402	$ 50,093	not reported
Total	$682,172	$298,553	$223,168
Total footage	3,059,312	1,772,991	2,625,952

(Cost in thousand dollars except dollars per foot)

TABLE 15. Texas offshore deep drilling
All wells drilled to 15,000 ft or deeper

	1980 (10 wells)	1979 (4 wells)	1978 (0 wells)
Average well depth	16,569 ft	17,228 ft	0
Average cost/well	$9,393	$12,685	0
	($566.89/ft)	($736.31/ft)	
Average mud cost/well	$982	$1,053	0
	($59.26/ft)	($61.11/ft)	
Average bits/well	47.4	43.3	0
	(350 ft/bit)	(398 ft/bit)	
Success ratio	30%	25%	0
Wildcat success ratio	14.3%	33.3%	0
	(7 wells)	(3 wells)	
Development success ratio	66.7%	0%	0
	(3 wells)	(1 well)	
Total costs: Mud	$ 9,819	$ 4,211	
Drilling	$87,737	$40,577	
Completion	$ 6,188	$10,163	
Total	$93,926	$50,740	
Total footage	165,686	68,911	

(Cost in thousand dollars except dollars per foot)

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TABLE 16. Utah deep drilling
All wells drilled to 15,000 ft or deeper

		1980 (11 wells)	1979 (3 wells)	1978 (4 wells)
Average well depth		17,137 ft	18,135 ft	[illegible]
Average cost/well		$5,974 ($348.60/ft)	$5,137 ($283.28/ft)	[illegible] ($147.33/ft)
Average mud cost/well		$614 ($35.81/ft)	$872 ($48.10/ft)	$210 ($13.75/ft)
Average bits/well		57.1 (300 ft/bit)	64.3 (282 ft/bit)	56.0 (273 ft/bit)
Success ratio		36.4%	0%	25%
Wildcat success ratio		22.2% (9 wells)	0% (3 wells)	25% (4 wells)
Development success ratio		100% (2 wells)	0% (0 wells)	0% (0 wells)
Total costs:	Mud	$ 6,751	$ 2,617	$ 840
	Drilling	$60,473	$11,494	$8,912
	Completion	$ 3,723	$ 300	not reported
	Total	$65,715	$15,412	$9,800
	Total footage	188,511	54,405	61,088

TABLE 17. Wyoming deep drilling
All wells drilled to 15,000 ft or deeper

		1980 (38 wells)	1979 (45 wells)	1978 (35 wells)
Average well depth		17,013 ft	17,984 ft	17,292 ft
Average cost/well		$6,183 ($363.42/ft)	$4,885 ($271.63/ft)	$3,303 ($191.03/ft)
Average mud cost/well		$604 ($35.52/ft)	$551 ($30.63/ft)	$285 ($16.50/ft)
Average bits/well		50.9 (334 ft/bit)	43.1 (417 ft/bit)	44.5 (388 ft/bit)
Success ratio		81.6%	37.8%	62.9%
Wildcat success ratio		75% (16 wells)	28% (25 wells)	47.6% (21 wells)
Development success ratio		86.4% (22 wells)	50% (20 wells)	85.7% (14 wells)
Total costs:	Mud	$ 22,962	$ 24,788	$ 9,992
	Drilling	$203,583	$174,311	$ 89,990
	Completion	$ 29,256	$ 44,750	not reported
	Total	$234,954	$219,993	$110,614
	Total footage	646,502	809,301	605,220

The following contractors (reported by the operating companies) drilled the wells analyzed in PEI's 1980 Deep Well Survey.

A & P Drilling Co. Inc.
Amoy Drilling & Well Service Corp.
Apollo Drilling & Exploration Inc.
Ard Drilling Co.
Arden Drilling Co.
ATCO Drilling Inc.
Pernie Bailey Drilling Co.
Baker & Taylor Drilling Co.
Bay Drilling Corp.
Big Chief Drilling Co.
Big-O-Drilling Inc.
Blocker Drilling Co.
Bomac Drilling
Bonray Energy Corp.
Brinkerhoff-Signal Inc.
L. D. Burns Drilling Co.
Butler Drilling Co.
Butler-Johnson Inc.
Buzzini Drilling Co.
Cactus Drilling Co.
Chase Drilling Co.
Circle Bar Drilling Co.
Cleveland Drilling Co.
Cliffs Drilling Co.
Core Drilling Co.
Culver Drilling Co.
Cyclops Drilling Co.
Decca Drilling Co.
Delta Drilling Co.
Delta Marine Drilling Co.
Diamond M Drilling Co.
Dixilyn-Field Drilling Co.
Dolphin International Inc.
Dual Drilling Co.
Eagle Production & Drilling Services Inc.
Eljay Drilling Corp.
Exeter Drilling Co.
Explorer Drilling Co.
Field Drilling Co.
Fluor Drilling Services Inc.
Forster Drilling Co. Inc.
Fortune Exploration Co.
Forwest Inc.
F W A Drilling Co. Inc.
Glasscock Drilling
Global Marine Inc.
Globe Drilling Co. Inc.
Goldrus Drilling Co.
Grey Wolf Drilling Co.
Griner Drilling Service Inc.
Edward Hall
Harkins & Co.
Harper-Turner Drilling
M.R. Harvey
Helmerich & Payne Inc.
Maxwell Herring Drilling Co.
W. B. Hinton Drilling Co. Inc.
Houston Offshore International Inc.
Intrepid Drilling Corp.
Jernigan Drilling Co.
L. E. Jones Drilling Co.
Justiss Mears Oil Co. Inc.
Keydril Co.
Lama Drilling Co.
Larco Drilling Co. Inc.
Dan Lester Drilling Co. Inc.
Loffland Brothers Co.
Lord Drilling Co. Inc.
McVay Drilling Co.
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Marion Drilling & Services Co. Inc.
Marlin Drilling Co. Inc.
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Mercury Drilling Co.
Merit Drilling Co.
MGF Drilling Co.
Montgomery Drilling Co.
Moran Bros. Inc.
E. W. Moran Drilling Co. Inc.
Moranco
Murco Drilling Corp.
Nabors Alaska Drilling Inc.
New & Hughes Drilling Co. Inc.
Nicklos Drilling Co.
Nicor Drilling Co.
Noble Drilling Corp.
Nova Drilling Corp.
Ocean Drilling & Exploration Co.
O'Conner & Young Drilling Co.
Ogden Oil Co. Inc.
O'Neal Drilling Co.
Parker Drilling Co.
Parker Well Service Inc.
Penrod Drilling Co.
Portal Drilling Co.
Power Rig Drilling Co. Inc.
Progress Drilling & Marine Inc.
Chesley Pruet Drilling Co.
Quarles Drilling Corp.
Rapad Drilling Co.
Reading & Bates Corp.
Resources Drilling Inc.
Restock Drilling Co.
Richards Drilling Co.
Rio Grande Drilling Co.
Robinson Brothers Drilling Co.
J. B. Roden Drilling Co.
Rosamond Drilling Co. Inc.
Rowan Drilling — U.S.
Salen Offshore Drilling Co.
Sanders Drilling Co. Inc.
Sands Drilling Co.
Santa Fe Drilling Co.
Sea Drilling Co. Inc.
Sedco Inc.
Dean Shanks
Sharp Drilling Co. Inc.
Southland Drilling Co. Inc.
Star Drilling Co. Inc.
Tasco Drilling Co.
Teledyne Movible Offshore Inc.
Tesoro Drilling Co.
Texaco Inc.
A. W. Thompson Inc.
Tiger Drilling Co.
Time Drilling Co.
Transworld Drilling Co.
TRG Drilling Corp.
Trigg Drilling Co.
True Drilling Co.
Two R Drilling Co. Inc.
Unit Drilling & Exploration Co.
United Drilling Co. of Tyler
Viersen & Cochran Drilling Co.
WellTech Inc.
Westburne Drilling Inc.
Western Oceanic Inc.
Wheless Drilling Co.
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Fred Wilson Drilling Co. Inc.
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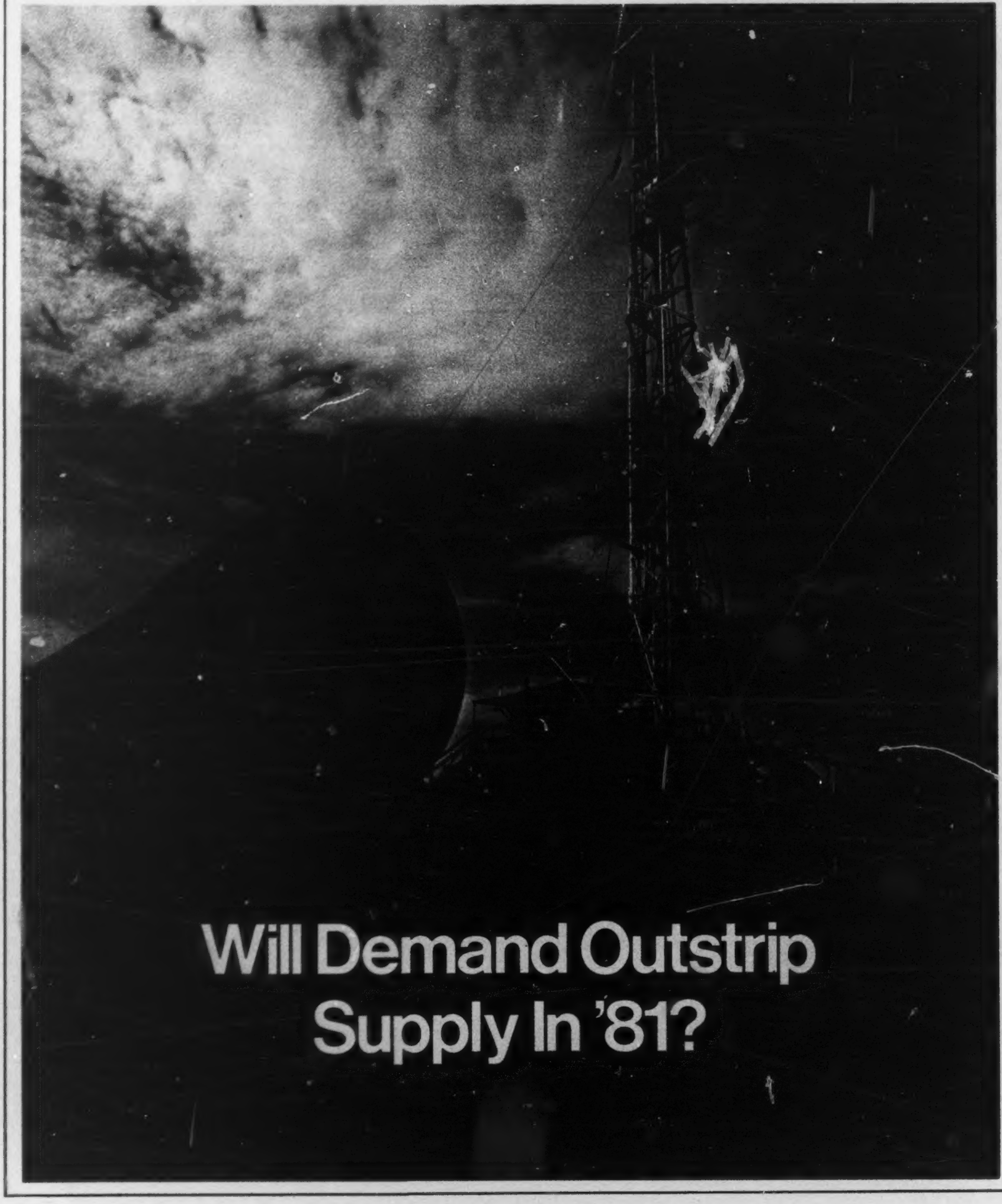


Will Demand Outstrip Supply In '81?

by Steven D. Moore, *Technical Editor*

The recent upswing in drilling activities has created some problems — a tight tubular market with possible spot shortages, a high demand for drilling rigs, and BOPs and bits in short supply. Although drilling mud materials should be adequate, except for an occasional logistics problem, an inrush of Canadian drilling rigs, and new drilling contractors entering the field every day, could strain the oilfield products market further.

Since pricing controls for most domestic crude oil were lifted, drilling has surged ahead. Activity could accelerate even faster if President Reagan's campaign promises are put into practice by Congress.

But does the U.S. have the equipment and service

TABLE 1. Comparative drilling figures for 1979 and 1980

	1979	1980	Increase, %
Active average rig count*	2,175	2,910	16.8
Total wells completed	49,101	62,704	27.7
Total new field wildcat wells drilled	6,777	7,317	8.0
Average well depth, ft	4,830	4,594	(4.9)
Average wildcat well depth, ft	6,062	6,106	0.7
Summary			
Footage, million ft	237.2	288.1	21.5
Estimated drilling and completion costs, $ billions	13.8	19.5	41.0
Success rate for all wells, %	67.7	72.0	
Success rate for wildcat wells only, %	18.7	19.9	

Source: 1. Petroleum Information Corp., except for active average rig count.
2.* Hughes Tool Co.

to support these ambitious drilling plans? In an industry already strained by spot shortages in supplies and manpower, is there room to grow?

Petroleum Information Corp. reported that a record 62,704 wells were drilled for oil and gas in the U. S. during 1980. That total eclipses the previous record of 57,111 wells drilled in 1956 and surpasses the number of wells drilled in 1979 by 13,603 — a 27.7% increase (Table 1).

On Jan. 2, 1980, the average rig count stood at 2,506; a year later it soared to 3,326. Hughes Tool Co. recently revised its 1981 U. S. rotary rig daily use forecast upward; instead of an average rig count of 3,200, as predicted in October 1980, Hughes Tool now estimates 3,400 rigs will be drilling for oil and gas in 1981 — a 16.8% increase over 1980's actual average rig count of 2,910, and a giant 55% increase over 1979.

Theoretically, with 35 to 45 rigs being built and absorbed into the drilling industry each month, and the possible influx of 100 or more rigs from Canada, the average rig count could go even higher. Assuming a 99% utilization rate in December 1981, the active daily rig count could be close to 3,800 rigs. To the cautious observer, this may seem somewhat high, but don't be surprised if the active rig count ends 1981 at nearly 3,600 rigs.

Anyone 2 years ago, or even last year, would have thought an average rig count of 3,400 ridiculous. But today that figure doesn't seem so farfetched — especially considering the funds available for wildcat and development drilling.

Record amounts of cash are budgeted by both major and independent oil companies for 1981 drilling programs. Also, the majors are allotting a bigger percentage of their working capital to domestic operations because of the stable and — for a change — favorable political climate. Even Canadian oil companies are pumping funds into the U. S., after the Ottawa government announced plans to nationalize the Canadian petroleum industry.

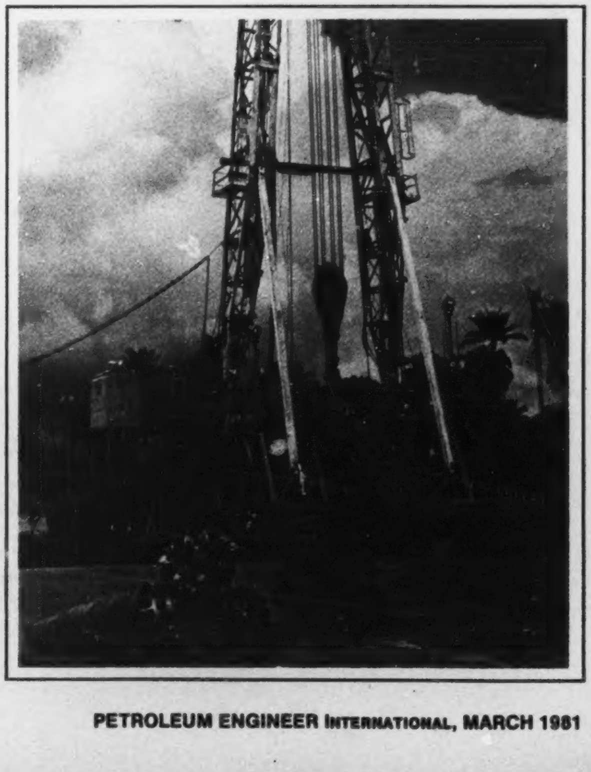
What this all comes down to is that drilling industry demand has not peaked yet. The big question is if the support industry can keep up.

Are Tubulars Running Short?

Oil country tubular goods were in tight supply all last year, with occasional spot shortages of high-grade pipe. Expect more of the same in 1981.

Inventories of most seamless carbon-grade tubulars remain adequate, as does production. Standard grades of pipe usually can be obtained without too much delay, but sometimes the wait stretches to as long as 3 months. The real shortage problem is for high-grade, alloy-steel pipe — particularly 9⅝-in. casing — where lag time for acquiring pipe may reach 5 to 9 months.

Demand for high-grade pipe stems from the quickening pace of deep drilling, where high-strength pipe is necessary for completing wells. Once, only the bigger oil companies could afford to drill deep wells, because of high drilling costs and relatively small profit margins. Now, with decontrol of natural gas below 15,000 ft and a greater return-on-investment, even smaller independents can participate in this high risk venture. Most forecasters feel that deep drilling will continue to increase over the next several years; however, without adequate supplies of high-grade pipe, growth may by stymied.

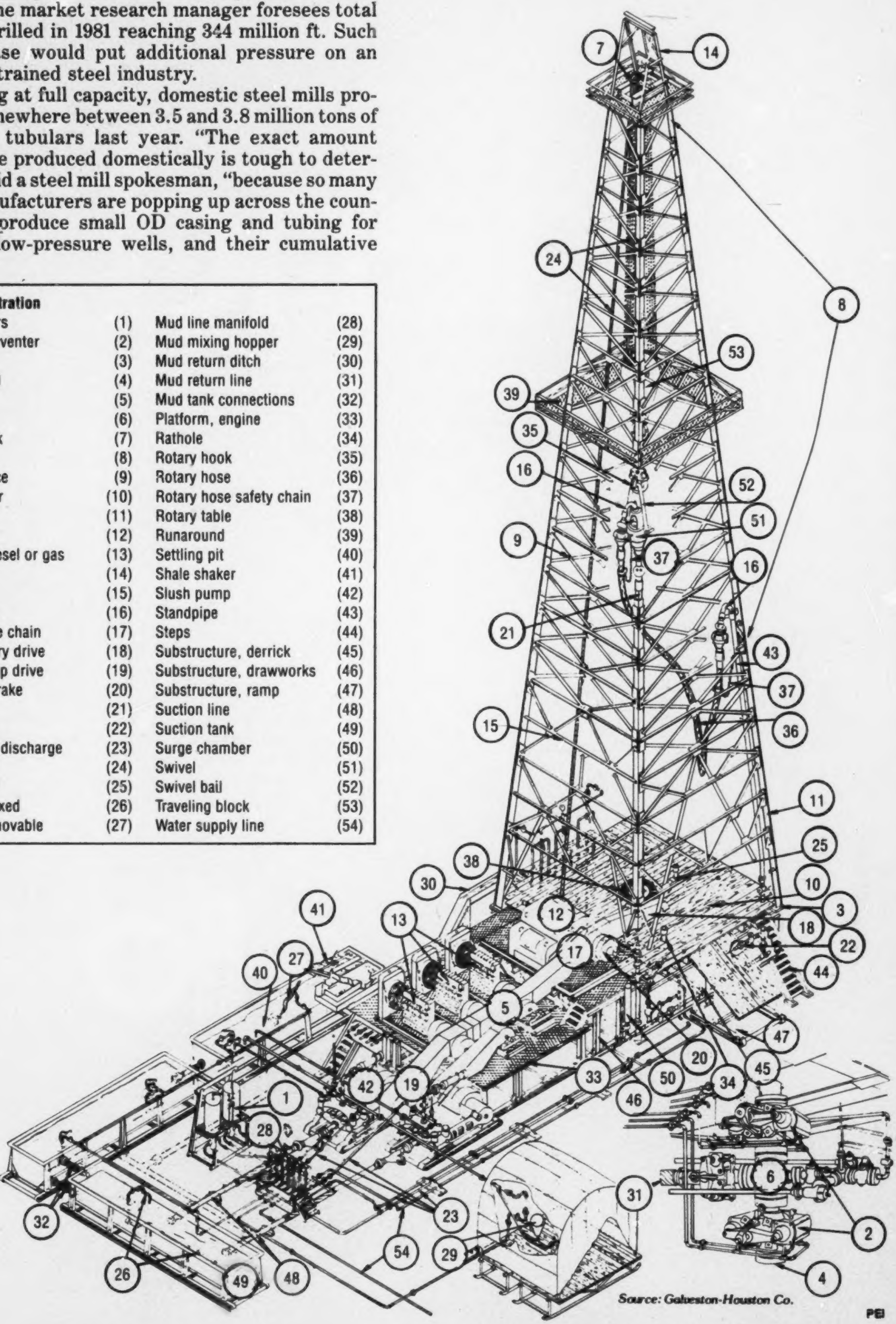


Total footage drilled in 1980 surpassed 288 million ft. One market research manager foresees total footage drilled in 1981 reaching 344 million ft. Such an increase would put additional pressure on an already-strained steel industry.

Working at full capacity, domestic steel mills produced somewhere between 3.5 and 3.8 million tons of seamless tubulars last year. "The exact amount of tonnage produced domestically is tough to determine," said a steel mill spokesman, "because so many little manufacturers are popping up across the country who produce small OD casing and tubing for shallow, low-pressure wells, and their cumulative

Key to illustration

Air chambers	(1)
Blowout preventer	(2)
Base plate	(3)
Casing head	(4)
Compound	(5)
Cross tee	(6)
Crown block	(7)
Derrick	(8)
Derrick brace	(9)
Derrick floor	(10)
Derrick leg	(11)
Drawworks	(12)
Engines, diesel or gas	(13)
Gin pole	(14)
Girt	(15)
Goose neck	(16)
Guard, drive chain	(17)
Guard, rotary drive	(18)
Guard, pump drive	(19)
Hydraulic brake	(20)
Kelly	(21)
Line, fill-up	(22)
Line, pump discharge	(23)
Line, rotary	(24)
Mouse hole	(25)
Mud gun, fixed	(26)
Mud gun, movable	(27)
Mud line manifold	(28)
Mud mixing hopper	(29)
Mud return ditch	(30)
Mud return line	(31)
Mud tank connections	(32)
Platform, engine	(33)
Rathole	(34)
Rotary hook	(35)
Rotary hose	(36)
Rotary hose safety chain	(37)
Rotary table	(38)
Runaround	(39)
Settling pit	(40)
Shale shaker	(41)
Slush pump	(42)
Standpipe	(43)
Steps	(44)
Substructure, derrick	(45)
Substructure, drawworks	(46)
Substructure, ramp	(47)
Suction line	(48)
Suction tank	(49)
Surge chamber	(50)
Swivel	(51)
Swivel bail	(52)
Traveling block	(53)
Water supply line	(54)



Source: Galveston-Houston Co.

PEI

production is hard to keep a tab on."

Regardless of the exact amount, domestic production will fall short of the 4.3 to 4.5 million tons of seamless tubulars expected to be consumed this year. The difference in supply and demand must be augmented by imported steel — mainly from Japan and Canada.

One steel company executive projects 1981 imports to reach 900,000 tons. A second source foresees imports in excess of 750,000 tons/year. But delivery schedules for some imports are lengthening, too, as demand for pipe increases worldwide — particularly in China, Latin America, and the Soviet Union.

If the prodigious rate of growth for the drilling industry is to continue, little, if any, steel — domestically produced or imported — can be put into inventory. Every available tubular good has immediate use. Fortunately, there has been very little hoarding of pipe — unlike the steel shortages of the early '70s — because of the continuing high interest and inflationary rates.

By late 1983 or early 1984, new manufacturing facilities will come on stream, easing this present plight. In the interim, the tubular goods market will remain tight; spot shortages of certain grades of pipe will increase in frequency and duration.

However, steel producers remain confident that they can still meet demand. As one spokesman put it, "There are no shortages for the people who plan carefully and place orders well enough in advance to secure the pipe they will need for future drilling."

Rigs Wanted

It seems that no one in the oilfield is too concerned about over-saturating the market with drilling rigs. In fact, new drilling contract firms are materializing nearly every day. Although the euphoria drilling contractors are experiencing appears to have no limit, eventually supply will outstrip demand.

But until then, operators will be put in the hot spot, searching for available rigs, and, in many cases, being required to sign a long-term contract before getting one. This doesn't put operators in the most enviable position, but, as one operator phrased it, "At least I know I'll have a drilling rig when I need it."

Demand for rigs is so high in the Overthrust Belt that most rigs will never leave. The same goes for the Williston Basin, where many of the Canadian rigs are relocating.

Drilling firms are expanding their fleets as fast as possible to keep up with the boom. TRG Drilling Corp. recently announced plans to acquire 18 new land rigs during 1981, bringing its fleet total to 104 rigs. Empire Oil and Gas Co. also is increasing its fleet size by purchasing 10 additional rigs. And the list goes on, with practically every drilling company included.

Rig manufacturers, like steel mills, are swamped with back orders. Lead time for construction is stretching out. One manufacturer said that lead time for constructing a rig ranges from 12 to 15 months. He also pointed out that as far as he could tell there is no slackening in demand.

Another rig company spokesman stated that lead time for his rigs, regardless of the size, was 10 months. Lead time would have been even longer if the firm hadn't opened two new construction facilities, he said. Most other manufacturers are reporting the same lead times, with an occasional longer wait for a deep-rated rig.

Backlogs for blowout preventers are excessive. A spokesman for one manufacturing firm said, "Delivery time for BOPs is 12 to 24 months, depending on the size and the pressure rating." Another source concurred, saying that orders for 1981 and half of 1982 were closed.

Surface mud equipment doesn't seem to be hard to find. One maufacturer said some equipment can be on location in a week, but most items require 60 to 90 days for delivery; a second manufacturer agreed, saying that all his equipment had lead times of 90 to 120 days, except for electronic devices that would require 32 weeks.

Extra mast and substructures have approximately the same lead times as drilling rigs, sometimes shorter in emergencies. Drawworks delivery time varies with the size required. A 1-year wait is usually a safe bet; larger drawworks will take longer. Rig prime movers and generators have minimum lag times of 6 months.

Pipe-handling equipment is running scarce, espe-

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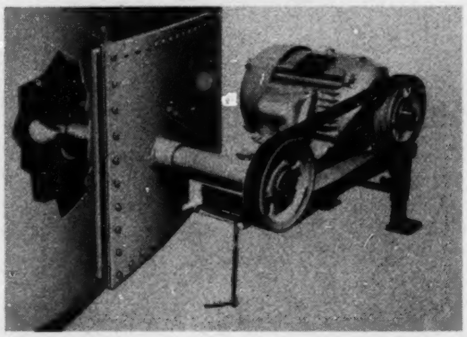

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cially casing and tubing tongs, slips, and elevators. Swivels and unions can take 9 to 12 months for delivery, high-pressure and H_2S service equipment having the longer lead times. Wire rope seems to be in adequate supply.

Too Few Bits

Rotary rock bits are in tight supply. No one is going without, but sometimes operators can't find the premium bit they planned to use and have to settle for second choice.

In the past, bit manufacturers required four backup bits for every bit sold. In other words, before a bit could be sold to a customer, four bits had to be either waiting in inventory, on the plant floor being manufactured, en route to the customer, or on the rig floor. With better manufacturing processes and facilities, and computer assistance, bit manufacturers have cut the required backup bits to a fraction over two. Now, because of demand, even this requirement is hard to maintain.

And don't expect relief anytime soon — not until additional manufacturing facilities are completed.

Supply of diamond bits is also tight. The biggest problem may not be availability, but price. With the rapidly escalating price of diamonds on the world market, diamond bit manufacturers are forced to raise their prices, too.

Supplies of bottomhole assemblies, drill collars, and kellys are similar to drill bits. Drillers are finding the supply tight as backlogs mount.

One manufacturer said that although demand has increased, he is confident that his company can handle any situation. He also pointed out that lead time for delivery will differ with size and weight of the equipment.

Assuming that total footage drilled this year increases 20%, supplies of mud and cement will have to increase by at least that much. This increase puts quite a burden on suppliers, who saw their business from 1979 to 1980 grow 30 to 35%. Although spot shortages will occur, supplies should be adequate. The recession in the construction and other related industries should help keep material shortages minimal.

People Problems

Maybe the most critical shortage in the oil industry today is the lack of qualified, experienced workers. Contractor and operator alike have been caught short. Not only is it a problem to find and keep good help, it's often a challenge just to find someone who is motivated and willing to work. Recession-caused unemployment may ease the shortages as new faces turn to the oil patch for jobs.

The oil industry's growth over the last 2 years has been dramatic. As a result, periodic shortages will occur as the support industry struggles to keep up. Until then, only careful planning can assure sufficient company inventory to keep rigs running. ■

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USSR Improves Drilling Record

by L. N. Shadrin,
All-Union Research Institute for Organization and Economics of Oil Industry, USSR

To increase current USSR oil and gas production, drilling efficiency must improve. The USSR Oil Ministry is using comprehensive statistical analyses to determine where inefficiencies lay and what improvements should be stressed.

According to data compiled between 1971 and 1974, capital invested into drilling exploratory and development wells accounted for an average 50% of the total investments budgeted to the oil industry. During the ensuing years, the percentage of capital invested in drilling programs decreased slightly, although the amount, in dollar figures, continued to climb.

Increases in the drilling budget were due to drilling activity growth, as well as a vast program of equipping drilling organizations with modern technology and tools and providing them with new special materials and chemicals.

Drilling Up

Statistics gathered from 1965 to 1978 showed a trend for rapid increases in the total annual footage drilled and the annual number of wells completed (Fig. 1). When exploratory and development drilling statistics are treated separately, it becomes obvious that the total increase in drilling was due mainly to the growth of development drilling. During these 13 years, total footage of development wells increased 2.23 times, while the volume of exploratory drilling gradually decreased.

Total annual footage drilled and number of exploratory and development wells completed by the USSR Oil Ministry increased, respectively, by 51.1 and 36.4% from 1970 to 1978, while the annual average number of drilling rigs was reduced.

During this 13-year period, development drilling improvements included:

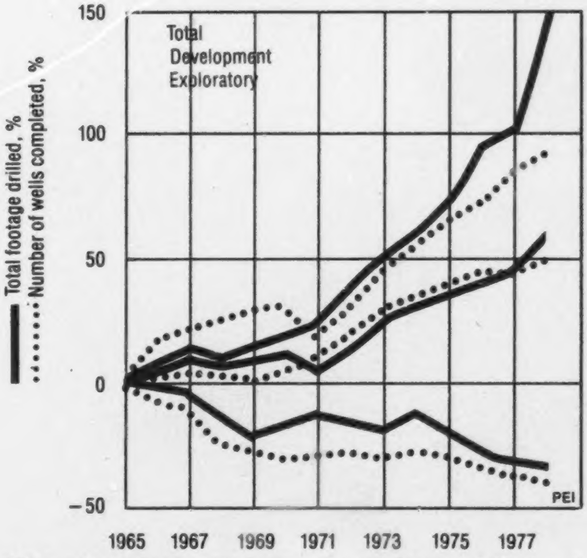


Fig. 1. Annual percent change of total footage drilled and number of wells completed.

- Average well depth increased from 5,814 to 6,542 ft (1,772 to 1,994 m).
- Overall drilling speed increased from 3,675 to 5,620 ft/drilling rig/month (1,120 to 1,713 m/drilling rig/month).
- Average footage bit increased from 113.1 to 249.7 ft (34.5 to 76.1 m).
- Penetration rate increased from 31.89 to 42 ft/hr (9.72 to 12.8 m/hr).

In the same period, exploratory drilling also improved:

- Average depth increased from 8,337 to 9,177 ft (2,541 to 2,797 m).

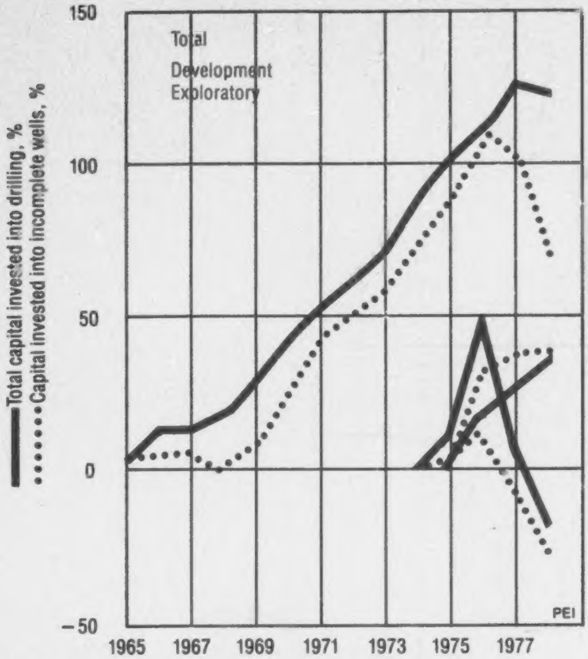


Fig. 2. Annual percent change of capital invested into drilling and capital invested into incompleted, or abandoned, wells. Statistics for exploratory wells gathered only after 1973; statistics for development wells gathered only after 1974.

- Overall exploration drilling speed increased from 1,112 to 1,338 ft/drilling rig/month (339 to 408 m/drilling rig/month).
- Average footage bit increased from 59.4 to 92.2 ft (18.1 to 28.1 m).

However, the penetration rate decreased from 10.43 to 9.71 ft/hr (3.18 to 2.96 m/hr).

Improvement of these performance statistics enabled the USSR's target of increasing profitability for drilling operations to be substantially exceeded. In 1975, drilling efficiency was increased 2.4 times (compared to that in 1970), while the oil ministry's target was only 1.5 times. The drilling plan as a whole was surpassed by more than 7.9 million ft (2.4 million m) of drilled footage and 2,700 completed wells.

Unfortunately, at the same time, the number of incompleted wells was growing rather intensely. The apex was reached in 1976, as investments in incompleted wells approached the level of annual capital invested into drilling (Fig. 2). The incompleted well ratio—the ratio of incompleted wells expenditures to capital invested in drilling—remained high throughout 1965 to 1976 (Fig. 3).

A radical change took place in 1977, when the USSR resolution to shorten drilling time by 25 to 30% was put into practice. Drilling departments of USSR oil industry took all possible measures to decrease the number of wells suspended before drilling, to shorten testing and completion times, to hasten decisions on suspension and abandonment of wells, as well as to shorten or exclude the suspension period before putting wells on production. These measures, along with continually equipping the drilling organizations with modern technology and equipment, made it possible to decrease the number of wells suspended before drilling and testing.

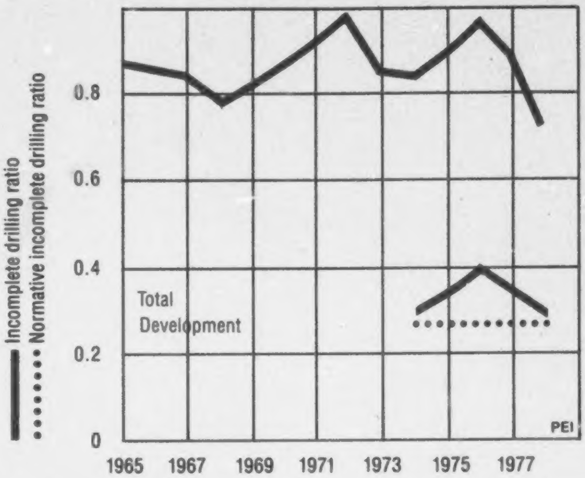


Fig. 3. Incompleted well ratio. Ratio is capital invested into incomplete, or abandoned, wells vs capital invested into total drilling operations. The normative ratio is the ratio the USSR Oil Ministry has set as a ratio to stay below.

As a result, drilling time for both development and exploratory wells was shortened, compared to corresponding figures for 1975. These achievements enabled the target to be reached ahead of time.

The trend for the decreasing incompleted wells surfaced after 1976, when the measures taken to decrease total drilling time had already produced the first results. If this trend continues, in 1 or 2 years the volume of incompleted wells will comply with the norm established by the oil ministry, which will be an important factor in ensuring effective planning, financing, and organizing of drilling operations.

Productivity Must Improve

Although drilling efficiency was improved, it should be noted that there are great possibilities of further improvement—specifically, and most important, productivity of labor.

Indeed, the annual changes in USSR drilling statistics show that unproductive times changed only insignificantly and lasted a long time. At the same time, a tendency for an increase of time losses due to poor management can be noted both in development and exploratory drilling.

In exploratory drilling, a trend can be noted toward increases in the time spent for eliminating drilling troubles and decreases in time spent for eliminating accidents and defects. Although actual time lost due to poor management in exploratory drilling decreased by 4% in 1977 compared to the corresponding 1970 figure, unproductivity remained high.

Productive time spent for secondary operations remains too long. Shortening this part of drilling operations is worth noting. In 1978, for instance, the time spent per 3,281 ft (1,000 m) of hole decreased by 31.2 and 15.8% (compared to 1970 figures) in development and exploratory drilling, respectively. But due to well depth increases, more complicated geologic conditions, and increase of directional well drilling in many regions, the time spent for electric logging, drilling tool orienting, mixing and treating of drilling muds, hole reaming to the nominal size, and other operations increased.

Nevertheless, there is a real possibility to reduce this time by further combining electric logging operations, using improved mud mixing, optimizing drilling hydraulics and reaming operations, speeding up blowout prevention equipment rig-up and pressure tests, and other secondary operations.

Analysis of a 24-hr drilling time distribution between 1970 and 1977 shows a trend for decreased drilling time. Operations involved in the actual drilling gradually decreased due to an increase in other operations in the total volume of work.

Since 1977, actual drilling time has increased slightly. Specifically, on-bottom time has increased gradually while tripping time has decreased.

These results were attributed to improvements in the service life and efficiency of new drilling bits and downhole motors. However, the increase in drilling time is insignificant, pointing to the fact that improvement in the service life of drilling bits and downhole motors is offset, to a large extent, by time losses due to poor management and performing unproductive or low-efficiency secondary operations.

Drilling Costs Up

All of the above-mentioned factors contributed to increases in drilling costs. From 1965 until 1978, average well depth increased by 20.9 and 20% in development and exploratory drilling (Fig. 4), respectively, while the cost for 3.281 ft (1 m) of well increased by 74.5 and 87.4% respectively. The increase in drilling costs compared to the growth of the average well depth is somewhat disproportionate. Besides the increase in average well depths, there are complications of geology, subsurface temperature, pressure, and hydrodynamic conditions; also, drilling is gradually spreading to remote regions of Western Siberia, European North, and other poorly developed USSR regions.

Cost increases of preparatory operations for drilling 3.281 ft (1 m) of a development well increased from 3.1% in 1965 to 4.4% in 1970 and then to 12.1% in 1978; transportation expenses increased from 5.7 to 8.6% during the same period. The cost increases for these elements are associated with a sharp increase in the volume of preparatory operations and transportation services required to carry out enormous drilling programs in the hard-to-reach regions of the USSR. At the same time, actual drilling time reductions, as well as an increase in the drilling and completion rates, resulted from cost reductions associated with drilling equipment and tools used.

During the period analyzed, a decrease in overhead costs occurred for both development and exploratory wells. This is attributed to a reduction in administrative expenses in the process of uniting the drilling organizations of the USSR oil industry — a program to improve drilling processes and management in the late '60s and early '70s.

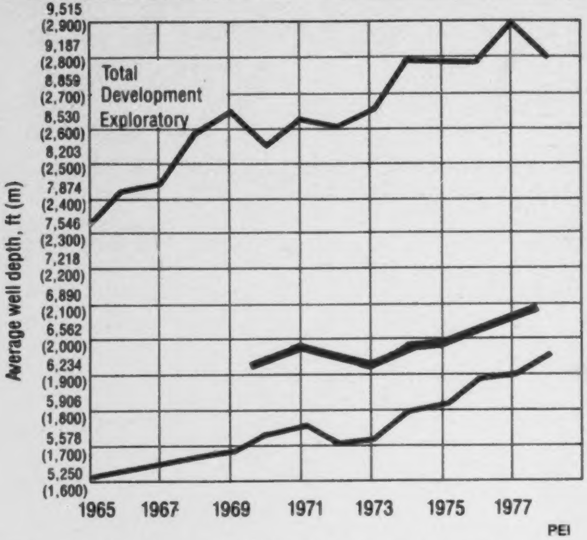


Fig. 4. Average well depth statistics for total wells gathered only after 1969.

The relationship between the elements of actual drilling costs changed to a lesser degree in exploratory drilling from 1965 to 1978. Apparently, this small increase was brought about by the reduction in exploratory drilling volume (Fig. 3). Also, in recent years, exploratory drilling was carried out mostly in old oil regions — additional exploration of oil pools and exploration of new fields.

Future Plans

These data suggest a great potential for improving the technical and economic considerations of drilling. This also is confirmed by the difference between the average labor productivity of the drilling crews and the corresponding productivity of advanced drilling crews of the same organizations (Table 1). For instance, the drilling crew of the Neftejugansk drilling department No. 2, led by toolpusher G.G. Skladchikov, drilled 171,915 ft/year (52,397 m/year)— and had a productive time percentage of 88.3%. At the same time, average development well productive time percentage in this drilling department was 45.4%, with footage per drilling crew of 128,562 ft/year (39,184 m/year). The advanced drilling crew is ahead of its drilling department in terms of overall drilling speed by about 3,281 ft/rig/month (1,000 m/rig/month).

Even greater differences can be seen in the performance of the drilling crew led by toolpusher M.P. Grin—104,447 ft/year (31,834 m/year), with an overall drilling rate equivalent to 9,938 ft/rig/month (3,029 m/rig/month) and productive time of 94.8%. The average Aznakaev drilling department crews drill 79,170 ft/year (24,130 m/year), with an overall drilling speed of 7,307 ft/rig/month (2,227 m/rig/month) and productive time of 75%.

When drilling conditions are comparable, the difference in statistics is caused, to a large degree, by such factors as skill of the main crew members, per-

TABLE 1. Drilling ratings for different organizations, departments, and best drilling crews

Organization Drilling department Best drilling crew	Well type	Average well depth, m	Overall drilling rate, m/rig/month		Productive time, %	Average depth per crew
			Planned	Actual		
Juganskneftegaz	Development	2,566	3,551	2,419	56.3	33,743
Neftejugansk drilling department No.2	"	2,612	3,597	4,242	45.4	39,184
Crew of G.G. Skladchicov	"	2,620	3,817	5,241	88.3	52,397
Tatneft	"	1,652	2,129	2,095	74.4	22,364
Almetjev drilling department	"	1,619	2,090	2,057	75.5	23,008
Crew of D.M. Nurutdinov	"	1,673	2,380	2,869	90.3	31,025
Aznakaev drilling department	"	1,622	2,220	2,227	75.0	24,130
Crew of M.P. Grin	"	1,536	2,530	3,029	94.8	31,834
Embaneft	Exploratory	2,624	258	346	59.1	4,058
Balykshinsky drilling department	"	3,506	300	400	64.5	5,403
Crew of N.A. Kuznetzov	"	3,510	567	671	81.7	7,380
Ukrneft	Development	3,389	345	381	79.6	3,773
Poltava drilling department	"	3,882	376	447	79.6	3,545
Crew of V.A. Pylko	"	3,780	482	1,034	98.1	8,831
Azneft	"	1,908	550	516	70.2	5,511
Aly-Bairamly drilling department	"	2,100	674	495	67.5	5,042
Crew of A.A. Gasanov	"	2,150	500	942	98.4	7,532
Stavropolneftegaz	Exploratory	3,805	550	727	83.0	5,958
Neftekumsk drilling department	"	3,823	580	757	77.6	3,100
Crew of S.R. Rassiev	"	4,450	618	811	92.4	8,306
Uzbekneft	"	3,769	240	241	73.5	2,419
Andizan drilling department	"	4,542	240	271	85.6	2,776
Crew of T. Tursunov	"	4,490	346	432	93.0	4,490
Saratovneftegaz	"	4,032	200	210	53.2	1,829
Saratov drilling department	"	3,622	245	269	56.2	1,432
Crew of A.K. Shevchenko	"	5,000	351	453	92.2	3,350
Stepnovsk drilling department	"	2,842	166	164	47.3	1,116
Crew of P.K. Lomóvtzev	"	2,583	294	443	89.4	3,902
Niznevolzskneft	Development	2,023	706	689	71.0	6,622
Archedinsky drilling department	"	3,012	850	696	77.4	6,211
Crew of D.A. Rybalkin	"	3,170	798	844	83.1	9,063
Crenburgneft	"	2,391	1,225	1,306	75.6	11,768
Sorochinsky drilling department	"	2,481	1,133	1,281	74.4	12,161
Crew of A.I. Emeljanov	"	2,474	1,312	1,785	91.6	15,049
Komineft	"	2,615	795	791	71.2	7,843
Drilling department No.2	"	3,338	876	951	81.4	8,790
Crew of S.V. Melehin	"	3,272	883	1,433	95.0	13,129

manence of crew personnel, and coordination of crew efforts, moral unity, and working conditions for crew members.

A great difference in statistics between advanced and average crews is, to a certain degree, indicative of inadequate work supervision and weaknesses in the technological and service divisions responsible for drilling support. Conditions for continuous drilling often are created by the leaders of the advanced crews themselves. They undertake functions which are not fully performed by the administrative staff and service divisions of the drilling department. In this sense, better management responsibility for the effective work of all drilling crews should be a dependable factor in raising crew output.

Technological improvements for drilling in the USSR should be aimed at better selection of surface drilling and power-generating equipment, type and size of drilling bits, downhole motors, drill string components, casing and other oilfield tubular goods, wellhead equipment, etc. Other technological improvements should include:

- Better substantiation of drilling practices.
- Improved methods and technology to control and maintain structural and mechanical properties of drilling muds by chemical treatment and timely mechanical cleaning.
- Regulation of hydrodynamic pressure on the hole bottom and walls.
- Optimization of round-trip and casing running speeds, drilling hydraulics, and cementing practices.
- Prevention of drilling troubles and accidents.

Organizational improvements should include:

- Better project and financial documentation.
- Reliable technological, transportation, and information services.
- Timely services of specialized subcontract organizations.
- Taking all measures to provide qualified personnel, to improve qualifications of engineers and technicians, and to organize special training and educational work. ■

Acknowledgement. This article was adapted from an article printed in the Soviet magazine *Neftjanoye Hoziajstvo* (May 1980) No. 5, 14-20.

$9 Billion To Tap Unconventional Gas

Production from unconventional gas sources will become increasingly attractive in the 1980s and indispensable to maintaining viable reserve levels in the 1990s, according to a research report by Frost & Sullivan Inc. of New York.

As a result, demand for the drilling equipment, supplies, and services required to tap unconventional gas will build continuously through the balance of this century, says the 248-page study entitled "Unconventional Gas Production and Associated Equipment Markets".

As the boundary between conventional and unconventional sources blurs, the demand for drilling and production equipment will reach first to $1 billion (1985) and then leap to $9.6 billion in 1990 (in 1980 dollars). The demand for services will increase in the same period from $583 million to $3 billion.

Outlays for specific categories of equipment and services will be as follows:

(Millions of 1980 $)			
Equipment	**1985**	**1990**	**2000**
Drilling rigs	$628	$1,717	$4,101
Drill string components	48	132	316
Tubular goods	14	39	95
Production equipment	311	1,430	4,930
Production rigs (wireline)	32	80	160
Services			
Wireline services	275	350	667
Well workover	35	79	240
Well treatment	273	342	2,097

In one other sector, that of drilling fluids, tight supplies are expected to bring dramatic price increases, estimated at a rate nearly 10% higher than that of inflation.

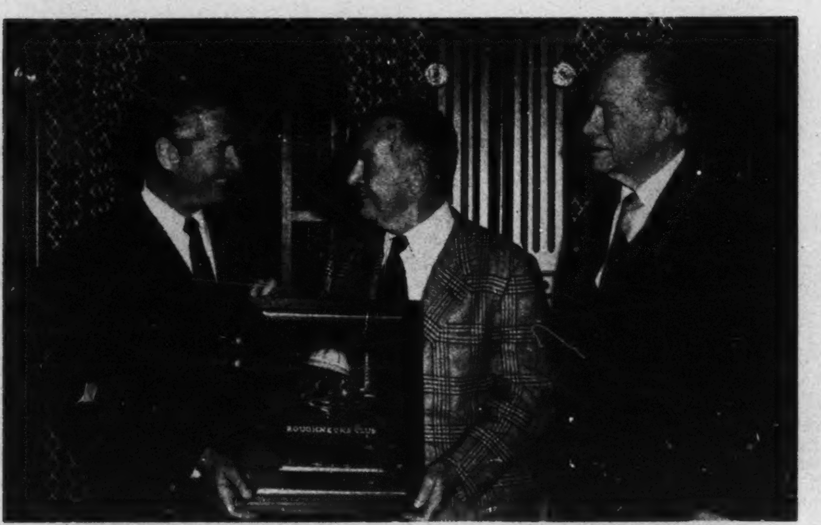
Unconventional sources are natural gas deposits trapped in tight sands, or in reservoirs within formations of low permeability, including shales and coal seams, as well as those trapped or dissolved in geopressured aquifers. Without these unconventional gas sources, however, F&S warns there will be less than 5 years of reserves in conventional gas reservoirs by the year 2000. If prices are to reach a level necessary to provide industry-acceptable 15% return, F&S says, gas must increase from about $2/Mcf (in 1980 dollars) to $3 to $3.75/Mcf.

At $3.50/Mcf, all unconventional sources, with the exception of geopressured aquifers, become economically producible. At that price level, about 26 tcf, or 8% of total economically recoverable gas resources, will be unconventional. Deregulation—the equivalent of a free market price for gas — must take place before 1985, however, if this equilibrium level pricing is to be reached, F&S says.

In brief, as the availability and profitability of natural gas continue to decline, arrested only by significant price increases, these unconventional sources become indispensable. Total estimated recoverable unconventional gas available from the four sources ranges between 87 and 1,156 tcf, broken down as follows:

Estimated recoverable unconventional gas, tcf	
Source	**Range**
Tight sands	70 to 560
Devonian shale	4 to 520
Geopressured aquifers	0.05 to 42
Coal-bed methane	13.5 to 34

If recovery technology improves, total reserves become significantly greater.



Texas Governor William P. Clements Jr. (center) receives a plaque naming him a member of the Roughnecks Club with the special title of Ambassador from James E. Chenault Jr. (left), president of Lone Star Steel Co. Looking on is L. D. Webster, a Lone Star Steel vice president, who planned the Roughnecks Club program 27 years ago and has directed it since.

Dual Completion Offshore Texas

MGF Oil Corp.'s Kilroy et al No. 1 High Island 87-S exploratory well, offshore Jefferson County, Texas, has been dually completed from two Miocene sands that occur within the interval of 7,400 to 8,200 ft. The well was drilled to a TD of 9,145 ft.

Through a perforated interval of 7,390 to 7,394 ft in the shallower sand, the well flowed at a daily rate of 492 bbl of 33.6° gravity oil with no water. Flowing tubing pressure was 845 psi through a 12/64-in. choke.

The deeper sand, perforated between 8,152 and 8,198 ft, flowed at a rate of 1.2 MMcfd of gas, no water, with a flowing tubing pressure of 2,272 psi on a 10/64-in. choke.

This well is located approximately 45 miles northeast of Galveston, Tex., in state-controlled waters of the Gulf of Mexico.

Texaco Tests Two Offshore Wells

Texaco U.S.A. has announced successful tests from two wells in Vermilion Block 380 in the Gulf of Mexico, approximately 130 miles southwest of Morgan City, La.

Texaco's A-3 well discovered a new reservoir in the Pleistocene formation at intervals between 7,881 and 7,950 ft. The well tested at a rate of more than 800 b/d of oil through a 7/16-in. choke in what is predominantly a gas-prone area of the Gulf.

The well was drilled to a TD of 8,355 ft from a 10-well platform — the company's outermost offshore platform in the Gulf of Mexico — in 340 ft of water.

Petroleum Engineer INTERNATIONAL

This International Land Rig Locator is a supplement to the March, 1981 issue of PETROLEUM ENGINEER International.
In October, 1955, THE PETROLEUM ENGINEER originated and published the first Rig Locator. For over a quarter century, drilling contractors have used this magazine Rig [illegible] providing [illegible] contracts with [illegible] and location of contract rotary rigs throughout the Free World.
Since the Rig Locator's 1955 origin [illegible] other organizations periodically [illegible] similar concepts, even the title, while others shuffle and re-publish PEI Rig Locator data.
This Rig Locator in your hands, detailing 3,912 land rigs (worldwide), is the most complete [illegible] rotary drilling [illegible] exceeding in [illegible] rigs the PEI Land Rig Locator published in September, 1980, by 236 rigs.

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Petroleum Engineer® INTERNATIONAL

Spring 1981 International

LAND RIG LOCATOR

Drilling for The Louisiana Land and Exploration Co., Eagle Production & Drilling Services Inc.'s Rig 2 is shown on location in Lawrence County, Mississippi.

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DRAWWORKS MANUFACTURERS ABBREVIATIONS

Bethlehem Supply Co.	Beth
Bucyrus-Erie Co.	B. Erie
Cabot Corporation Machinery Division	Cabot/Franks
Cardwell Manufacturing Company Inc.	Crdwll
Challenger	Challenger
Continental-Emsco	EMSCO
Fred E. Cooper	Cooper
DeMag Manufacturing Co.	DeMag
Ewbanks Speedstar	Ewbanks
George E. Failing Co.	Failing
Foramines	FORAMINES
Gardner-Denver	Gar-Den
Gary Drilling	Gary
Hacker Machine & Supply Co.	Hacker
Hooper Machine Works Inc.	Hooper
Howard-Turner Machine Works	Howard-Turner
Ideco Inc.	Ideco
Ingersoll-Rand Co.	Ingersoll
Joy Manufacturing Co.	Joy
Lee, Harold Engineering, The	Lee
Mayhew Supply Co. Inc.	Mayhew
Justiss Mears Oil Co.	JFJ
Mid-Continent Supply	M-CSCO
National Supply	Natl
OIME	OIME
OILWELL Div. (U.S. Steel)	OILWELL
Pool Company	Pool
Salzgitter Maschinen Manufacturing Co.	Salzgitter
Skytop/Brewster	Brwstr
Spencer-Harris Machine & Tool Company	Spencer
Sullivan	Sullivan
Superior (DRECO Ltd.)	Superior
Unit Rig Company	Unit
Wagner-Morehouse Inc.	Wgnr-Mrhse
Walker-Neer Manufacturing Company Inc.	Wlkr-Nr
The Wheland Company	Whlnd
Wichtex Machinery Co. Inc.	Wichtex
Wilson Manufacturing Co. Inc.	Wlsn

Petroleum Engineer INTERNATIONAL

U.S. Rotary (Land) Drilling Contractors

A

A & P DRLG CO INC 2601 NW Expressway Suite 709 Oklahoma City OK 73112 405-843-1557
ABERCROMBIE DRLG INC 801 Union Center Wichita KS 67202 316-262-1841
ACT DRLG CO P O Box 690 Yukon OK 73099 405-495-2903
ADECO DRLG & ENGR CO LTD 505-2nd Street SW Calgary Canada T2P 1N8 403-266-6291
AIKINS DRLG CO 151 10th Avenue N Shelby MT 59474 406-434-2565
ALANCO DRLG CO P O Box 1970 Alice TX 78332 512-664-2388
ALL WESTERN DRLG P O Box 414 Vernal UT 84078 801-789-4581
ALLEN DRLG CO P O Box 1389 Great Bend KS 67530 316-793-5681
ALLISON DRLG CO INC 1275 Sherman Street Denver CO 80203 303-861-2228
AMOY DRLG & WELL SERV CORP 101 Elizabeth Ann Blvd Lafayette LA 70508 318-237-9000
ANDERSON-MYERS DRLG CO 1515 Arapahoe Suite 1075 Denver CO 80202 303-623-5600
APACHIE DRLG INC Route 2 Lowell OH 45744 614-373-6384
APOLLO DRLG & EXPL INC Campbell Center Suite M-1070 Dallas TX 75206 214-361-8920
ARAPAHOE DRLG CO P O Box 26687 Albuquerque NM 87125 504-247-2294
ARD DRLG CO P O Box 1030 Midland TX 79701 915-684-5716
ARDEN DRLG CO P O Box 968 Edmond OK 73034 405-348-1806
ARDMORE DRLG CO P O Box 308 Ardmore OK 73401 405-223-2292
ARMSTRONG DRLG INC P O Box 545 Wooster OH 44691 216-262-4101
ARTESIA FISHING TOOL CO P O Box 196 Artesia NM 88210 505-746-6651
ASPEN DRLG CO P O Box P Shelby MT 59474 406-434-5266
ASTRAFOR SAIC Tucuman 117 8 Piso Buenos Aires Argentina
ASTRO DRLG CO 6801 South Western Suite 201 Oklahoma City OK 73139 405-632-9729
ATCO DRLG INC 3515 South Tamarac Suite 230 Denver CO 80237 303-770-2490
ATCO DRLG INC-SOUTHERN DIV 9100 Southwest Frwy Suite 111 Houston TX 77074 713-777-9198
ATLANTIC OIL CO P O Box 497 Paramount CA 90723 213-633-5151
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BETA DRLG INC 117 West Loop South Suite 156 Houston TX 77027 713-840-0044
BF & B DRLG INC 2525 NW Expressway Oklahoma City OK 73112 405-848-2866
BIG 6 DRLG CO 7500 San Felipe Suite 666 Houston TX 77063 713-783-2300
BIG CHIEF DRLG CO P O Box 14837 Oklahoma City OK 73114 405-843-5721
BIG SEVEN DRLG CO 400 Wright Bldg Evansville IN 47708 813-425-3503
BIG SPRINGS DRLG INC P O Box 8287 Wichita KS 67508 316-681-1732
BIG-O-DRLG INC 2701 Paton Way Bakersfield CA 93308 805-589-2012
BIGARD JAMES DRLG CO 1315 N Mission Road Box 509 Mt Pleasant MI 48858 517-772-5955
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BRANDT DRLG INC 1200 Douglas Building Wichita KS 67202 316-262-8357
BREA DRLG CO 12655 W Washington Blvd #106 Los Angeles CA 90066 213-390-8603
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BUTLER-JOHNSON INC 600 Travis Place Shreveport LA 71101 318-226-0731
BUZZINI DRLG CO 8700 Crownhill Suite 402 San Antonio TX 78209 512-824-3293

C

C & H DRLG CO 2626 South Clack Abilene TX 79602 915-677-8529
C & R DRLG CO 410-17th Street Suite 1140 Denver CO 80702 303-623-6144
C & R DRLG CORP P O Box 857 Perry OK 73077 405-336-2403
CACTUS DRLG CO P O Box 2068 Hobbs NM 88240 505-393-2146
CACTUS DRLG CORP P O Drawer 2800 Midland TX 79702 915-563-2500
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CALVERT WESTERN EXPL CO 902 Fort Worth Club Bldg Fort Worth TX 76102 817-335-1131
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CARAWAY FRANK DRLG CO P O Box 982 San Angelo TX 76902 915-655-7968
CARDINAL DRLG CO P O Box 1077 Billings MT 59103 406-248-7324
CARMACK DRLG CO 592-25 Road Grand Junction CO 81501 303-245-2500

C (Contd)

CARTER DEV CORP 1516 Two Turtle Creek Village Dallas TX 75219 214-521-9580
CARTER LAND & CATTLE CO INC P O Box 814 Chanute KS 66720 316-431-2080
CASTER WELL DRLG INC Forest Avenue Ext Jamestown NY 14701 716-484-7436
CENTURY DRLG CO P O Box O Shelby MT 59474 406-634-5091
CHALLENGER DRLG 220-444 7th Avenue SW Calgary AB Canada T2P 0X8 403-269-3121
CHEROKEE DRLG & DEV CORP P O Box 2381 Midland TX 79702 915-563-1516
CHEROKEE DRLG & OPERATING INC Route 2 Box 44AA Lowell OH 45744 614-373-6384
CHESLEY PRUET DRLG CO P O Box 447 Laurel MS 39440 601-649-1200
CHICO DRLG CO 808 Commerce Bldg Fort Worth TX 76102 817-336-8688
CHILES DRLG CO 5100 Westheimer Suite 135 Houston TX 77056 713-621-4991
CINCO DRLG CO P O Box 2089 Alice TX 78332 512-664-9556
CIRCLE BAR DRLG CO 2-3-4 Loyola Bldg Suite 505 New Orleans LA 70112 504-581-5502
CLAWSON-BAULCH DRLG P O Box 516 Ada OK 74820 405-332-4181
CLEVELAND DRLG INC 305-4800 Stockdale Hwy Suite 30 Bakersfield CA 93309 805-327-5268
CLIFFS DRLG CO 2-Allen Center Suite 3150 Houston TX 77002 713-651-9426
COLEMAN DRLG CO P O Drawer 3337 Farmington NM 87401 505-325-6892
COMANCHE DRLG INC Route 2 Box 44AA Lowell OH 45744 614-373-6384
COMANCHE DRLG CO P O Box 636 Cut Bank MT 59427 406-873-5731
COMET DRLG CO Box 51529 Oil Cntr Sta Lafayette LA 70505 318-233-0414
COMPADRE OIL CORP P O Box 97 Ardmoru OK 73401 405-223-3127
CORPUS CHRISTI DRLG CO 4605 Weiskopf Lane Corpus Christi TX 74813 512-852-7642
CRAWFORD DRLG 900 One Energy Square Dallas TX 75206 214-369-4424
CRC MALLARD INC P O Drawer 51498 OCS Lafayette LA 70505 318-233-4922
CRESCENT DRLG CO P O Box 626 Calhoun Road Owensboro KY 42301 502-926-4656
CULVER DRLG CO 3910 Cameron Street Lafayette LA 75006 318-269-0088
CYCLONE DRLG & WORKOVER INC Route 2 Box 31 Stroud OK 74079 918-968-3551
CYCLONE DRLG INC P O Box 246 Gilette WY 82716 307-682-4161

D

D & D DRLG CO P O Box 351 Ferriday LA 71334 318-757-3274
D-B DRLG CORP 600 First National Bank Bldg Abilene TX 79601 915-672-2841
DAKOTA DRLG INC P O Box 936 Pierre SD 57501 605-224-8393
DAMAC DRLG CO INC P O Box 1164 Great Bend KS 67530 316-792-1353
DAVIS D L DRLG CO INC P O Box 570 Mt Carmell IL 62863 618-262-7624
DELTA DRLG CO P O Box 2012 Tyler TX 75710 214-595-1911
DISCOVERY DRLG INC 3211 Southland Center Dallas TX 75201 214-742-6196
DIXILYN-FIELD DRLG CO P O Box 4251 Houston TX 77210 713-877-8850
DIXON DRLG CO P O Box 2320 512 First National Bank Abilene TX 79604 915-677-8503
DNB DRLG INC 515 RH Garvey Wichita KS 67202 316-264-8328
DOSS INC P O Box 542 Van Vleck TX 77482 713-245-1711
DREILING OIL INC Route 1 Victoria KS 67671 913-735-2204
DRILCON INC 8150 N Central Expwy Suite 1255 Dallas TX 75206 214-691-1924
DRILLERS INC 5629 FM 1960 Houston TX 77069 713-893-1020
DUAL DRLG CO P O Box 240 Wichita Falls TX 76307 817-723-2127
DUKE DRLG CO P O Box 823 Great Bend KS 67530 316-793-8366
DUNBAR DRLG INC 5252 North Broadway Wichita KS 67219 316-832-0501
DUNNE-GARDNER PETROLEUM INC 200 W Douglas Suite 250 Wichita KS 67202 316-265-1611

E

E & H DRLG CO P O Box 1058 Graham TX 76046 817-549-0370
E JAY DRLG CORP 8955 Katy Frwy Houston TX 77024 713-932-6771
EAGLE DRLG CO 114 Jefferson Davis Blvd Natchez MS 39120 601-445-8863
EAGLE DRLG INC P O Box 8609 Wichita KS 67208 316-682-5513
EAGLE PRODUCTION & DRLG SERV INC 3626 North Hall Suite 500 Dallas TX 75219 214-521-0021
EARL & SONS DRLG INC Box 111 Cedar Crest Albuquerque NM 87122 505-281-3880
EARNEST INC P O Box 1216 Okmulgee OK 74447 918-756-2616
EASON T T CO/EASON OIL CO 2601 NW Expressway Oklahoma City OK 73112 405-848-8711
ECONOMY DRLG INC P O Box 35 Converse TX 78109 512-659-1977
EDCO DRLG CO P O Box 645 El Dorado KS 67042 316-321-9285
EDWARDS WELL SERV 7001 Fruitvale Extension Bakersfield CA 93308
ELENBURG EXPL INC P O Box 1850 Havre MT 59501 406-265-5811
ENERGY DRLG CO INC P O Box 905 Natchez MS 39120
ENOPCO 12700 Park Central Pl Suite 1204 Dallas TX 75251 214-387-8503
EQUITY DRLG CO 3850 E Frank Phillips Blvd Bartlesville OK 74003 918-333-4620
EXCELL DRLG CO P O Box Wray CO 80758 303-332-4028
EXETER DRLG NORTHERN INC P O Box 17349 Denver CO 80217
EXETER DRLG SOUTHERN INC 1010 Common St 2635 Bank Bldg New Orleans LA 70112 505-581-1498

F

F-W DRLG CO 333 Bank of Commerce Bldg Abilene TX 79605 915-695-2064
FAIRMAN DRLG CO P O Box 288 Dubois PA 15801 814-371-8410
FAITH DRLG CO P O Box 7 Houston TX 77001 713-524-7111
FALCON DRLG CO 1700 S E 22 Second Oklahoma City OK 73129 405-670-3161
FARMER JOHN O INC P O Box 352 Russell KS 67665 913-483-3144
FARNSWORTH & KAISER DRLG CO 13 South Seneca Newcastle WY 82701 307-746-2591
FAULK DRLG CO P O Box 429 Breckenridge TX 76024 817-559-3744
FELDERHOFF BROS DRLG CO P O Drawer 400 Muenster TX 76252 817-665-3592
FINLEY OIL WELL SERV INC P O Box 7296 Long Beach CA 90807 213-427-7265
FISCUS DRLG CO INC Route 1 Box 572-A Big Spring TX 79720 915-393-5211
FLOURNOY DRLG CO P O Box 491 Alice TX 78332 512-668-8364
FORWEST INC 11211 Katy Freeway Suite 255 Houston TX 77079 713-932-7976
FOUR CORNERS DRLG CO P O Box 1067 Framington NM 87401 505-327-0322
FRANCE DRLG CO 700 Travis Place Shreveport LA 71101 318-221-3434
FRANKLIN DRLG CO P O Box 336 Graham TX 76046 817-549-5661
FREEMAN DRLG CO INC 251 North Water Suite 10 Wichita KS 67202 316-263-7049
FRIO DRLG & PROD CO 1216 Guaranty Bank Plaza Corpus Christi TX 78475 512-883-8555
FWA DRLG CO INC P O Box 419 Wichita Falls TX 76307 817-322-0761

G

G-C DRLG CO INC 104 South Broadway Suite 1107 Wichita KS 67202 316-263-1793
G-E DRLG INC P O Box 3155 Victoria TX 77901 512-578-5245
GABBERT-JONES INC 830 Sutton Place Wichita KS 67202 316-263-6209
GALLAGHER DRLG INC P O Box 3046 Evansville IN 47702 812-425-8256

Petroleum Engineer INTERNATIONAL

U.S. Rotary (Land) Drilling Contractors

G (Contd)

GARY DRLG CO 7001 Fultvale Extension Bakersfield CA 93308 805-589-0111
GAY DRLG CONTRACTORS P O Box 457 Duncan OK 73533 405-255-2528
GCO DRLG CO P O Box 3134 Abilene TX 79604 915-673-4731
GENERAL WELL SERV INC P O Box 308 Cut Bank MT 59427 406-873-2331
GIBSON DRLG CO P O Box 1540 Kilgore TX 75662 214-984-5068
GIBSON J W WELL SERV INC 3025 S Parker Rd Suite 711 Aurora CO 80014 303-752-2527
GLASSCOCK DRLG INC P O Box 51716 OCS Lafayette LA 70505 318-232-8620
GLOBE DRLG CO INC 310 Fair Foundation Bldg Tyler TX 75702 214-593-0281
GOLDEN STATE DRLG INC 2312 Fruitvale Avenue Bakersfield CA 93303 805-589-0730
GOLDRUS DRLG CO 900 First City Natl Bank Houston TX 77002 713-658-9271
GOPHER DRLG CO P O Box 949 Thicket TX 77374 713-298-2511
GRAVES DRLG CO INC 910 Union Center Wichita KS 67202 318-233-4400
GREAT SOUTHERN OIL & GAS CO P O Box 52707 Lafayette LA 70505 318-233-4400
GREEN DRLG CO P O Box 667 Gillette WY 82716 307-686-1381
GREY WOLF DRLG CO 2000 S Post Oak Rd Suite 1730 Houston TX 77056 713-626-1373
GUFFEY-SCHLENSKER DRLG CORP P O Box 1330 Richardson TX 75080 214-231-8551
GWALTNEY DRLG CO INC P O Box 520 Washington IN 47501 812-254-5085

H

H & S DRLG CO 320 So Boston Suite 2000 Tulsa OK 74103 918-587-8163
H-30 DRLG INC 251 North Water Wichita KS 67202 316-263-2043
HACK DRLG CO P O Box 5108 Abilene TX 79605 915-692-4111
HARKINS & CO P O Box 1490 Alice TX 78332 512-883-3022
HARPEL DRLG CO P O Box 2811 Casper WY 82602 307-265-9193
HARPER-TURNER DRLG 904 Hightower Bldg Oklahoma City OK 73102 403-232-3244
HARRIS DRLG CO Box 99 Hwy 15 Grayville IL 62844 618-375-2211
HARRIS WELL SERV INC P O Drawer 949 Eunice LA 70535 318-457-3376
HATCHER H F & SON P O Box 167 Smackover AR 71762 501-725-3034
HELMERICH & PAYNE INTL DRLG Utica at Twenty-First Tulsa OK 74114 918-742-5531
HERB EXPL P O Box 1934 Abilene TX 79604 915-672-1291
HICKMAN DRLG CO P O Box 1467 Woodward OK 73801 405-256-8688
HILLIN DRLG CO P O Box 152 Odessa TX 79760 915-563-3560
HINTON W B DRLG CO INC P O Box 1237 Mt Pleasant TX 72455 214-572-8777
HOLLIDAY DRLG INC P O Box 3489 Midland TX 79701 915-697-2208
HONDO DRLG CO P O Drawer 2516 Midland TX 79702 915-682-9401
HONEYMON DRLG CO LTD P O Box 74506 Oklahoma City OK 73147 405-947-2319
HOWELL DRLG INC 635 Milam Bldg San Antonio TX 78205 512-227-5283
HUDSON LEONARD DRLG CO INC P O Box 1876 Pampa TX 79065 806-665-1816
HUGHES DRLG CO INC Route 4 Box 38-A Enid OK 73701 405-234-7222
HUNNICUT & CAMP DRLG CO P O Box 399 Rio Vista CA 94571 707-374-2425
HUSKY DRLG CO INC 200 E First Suite 500 Wichita KS 67202 316-263-7904
HYLTON DRLG CO 7512 Kimberly Ave Bakersfield CA 93308 713-659-4816

I

I X DRLG CO INC P O Drawer 835 South Dale St Stephenville TX 76401 817-965-7818
INLAND WELL SERV INC P O Box 488 Abbeville LA 318-893-3486
INTL PETROLEUM SERV CO P O Box 547 Sheffield PA 16347 814-968-3295
IRONWOOD DRLG INC 1021 ESE Loop 323 Suite 350 Tyler TX 75703 214-561-5026

J

J & C DRLG CO P O Box 216 Refugio TX 78377 512-526-2376
J & W DRLG CO 1717 9th St Wichita Falls TX 76301 817-767-5447
J B RODEN DRLG CO P O Box 880 Mills WY 82644 307-266-6552
J-V DRLG CO INC 4445 Commerce St Evansville IN 47710 812-424-3571
JERNIGAN DRLG CO 10220 West Reno Oklahoma City OK 73147 405-324-5000
JOHNN DRLG CO P O Box 6157 Odessa TX 79762 915-563-1280
JOHNSON BATES DRLG CO INC P O Box 128 Konawa OK 74849 405-925-3256
JONES DRLG CO P O Box 1058 Albany TX 76430 915-762-3652
JONES DRLG CORP P O Box 1185 Duncan OK 73533 405-255-3532
JUSTISS MEARS OIL CO INC P O Drawer N Jena LA 71342 318-992-4111

K

K B DRLG CO P O Box 1848 Harve MT 59501 406-265-9832
KAN-GO INC P O Box 254 Marion KS 66861 316-382-2665
KAY DRLG CO P O Box 1622 Ponca City OK 74601 405-765-2407
KAY EXPL CO P O Box 2265 Ponca City OK 74601 405-765-2407
KELLOGG K L & SONS P O Box 7053 Long Beach CA 90807 213-422-1247
KENAI DRLG LTD 477 Madison Ave New York NY 10022 212-688-6600
KENAI DRLG OF TEXAS INC P O Box 6725 Odessa TX 79762 915-362-2323
KENAI DRLG WEST COAST INC P O Box 2248 Orcutt CA 93454 805-928-1701
KENDALL DRLG CO INC P O Box 5304 Evansville IN 47715 812-477-5535
KERN DRLG CO INC P O Box 688 Magnolia AR 71753 501-234-5011
KINGERY DRLG CO INC P O Box 1588 Ardmore OK 73401 405-223-6823
KISSINGER PETROLEUM CORP P O Box 22004 Denver CO 80222 303-773-0550

L

L & G DRLG CO P O Box 35 Mt Pleasant MI 48858 517-772-3083
L & K DRLG CO 730 West Britton Rd Oklahoma City OK 73114 405-848-8653
L D DRLG CO P O Box 324 Great Bend KS 67530 316-793-3051
LLL DRLG CO INC P O Box 188 Blomfield NM 87413 505-632-8045
L & M DRLG INC P O Box 647 Artesia NM 88210 505-748-2205
L & R DRLG CO P O Box 936 Pierre SD 57501 605-224-2467
LAGERSEN DRLG CO INC 302 Beck Bldg Shreveport LA 71101 318-227-9939
LAMA DRLG CO INC P O Box 430 Natchez MS 39120 601-445-5568
LANDFORD DRLG CO INC P O Box 98 Shreveport LA 71161 318-869-2519
LANDIS DRLG CO P O Box 3579 Midland TX 79702 915-683-4151
LARCO DRLG CO INC 1700 Capital Tower Jackson MS 39211 601-355-1542
LAUCK D R OIL CO INC 221 South Broadway Suite 400 Wichita KS 67202 316-363-8267
LAYTON OIL CO P O Box 263 Independence KS 67301 316-331-1150
LESTER DAN DRLG CO INC P O Drawer N Jefferson TX 75657 214-665-2511
LIN-MOUR DRLG CORP 1411 13th St Bldg 1 Wichita Falls TX 76301 817-322-8550

L (Contd)

LOFFLAND BROS CO P O Box 2847 Tulsa OK 74101 918-622-9330
LOGAN DRLG CO INC P O Box 1622 Enid OK 73701 405-233-5048
LOHMANN JOHNSON DRLG CO INC 111 Main Street Evansville IN 47708 812-424-8291
LORD DRLG CO INC 14618 West 6th Avenue Golden CO 80401 303-279-2471
LOUISE DRLG CO INC P O Box 272 Louise TX 77455 713-648-2641
LOWE DRLG CO P O Box 1368 Albany TX 76430 915-762-2530
LUKE GRACE CO INC 710 Petroleum Bldg Wichita Falls TX 76301 817-723-2187

M

MGF DRLG CO P O Box 51628 OCS Lafayette LA 70505 318-232-1172
MGF DRLG CO-MIDLAND P O Box 5766 Midland TX 79701 915-684-7173
MND DRLG CORP P O Box 248 Bridgeport TX 76026 817-683-5106
MAGIC CIRCLE DRLG CORP 3001 United Founders Blvd Oklahoma City OK 73112 405-843-5388
MALLARD WELL SERV INC P O Drawer 51498 OCS Lafayette LA 70505 318-233-4922
MANNING R L CO 1700 Broadway Suite 2200 Denver CO 80290 303-839-1977
MAR-TAY DRLG CO P O Box 1216 Drumright OK 74030 918-352-3802
MARION DRLG CO INC P O Box 16006 Mobile AL 36616 205-626-3300
MARLIN DRLG CO INC P O Box 51887 OCS Lafayette LA 70505 318-232-6361
MARLIN WEST P O Box 551 Bakersfield CA 93302 805-327-8304
MATAGORDA DRLG CO P O Box 10307 Corpus Christi TX 78410 512-888-4213
MAXWELL HERRING DRLG CO P O Box 1297 Tyler TX 75710 214-593-1737
MAYRONNE CO P O Box Harvey LA 70059 504-368-5911
MAZ KAR OIL CO 126 W Broadway Centralia IL 62801 618-532-9327
MCDONALD & SON DRLG CO SSRB Box 68 Marble Falls TX 78654 512-598-5731
MCCONNELL DRLG CO 111 Frio Street Lockhart TX 78644 512-398-2627
MCCUTCHEN J W DRLG CO 410 Oil & Gas Bldg Wichita Falls TX 76301 817-322-9231
MCLENNAN DRLG CO P O Box 6 Nowata OK 74048 918-273-1265
MCVAY DRLG CO 308 Philtower Bldg Tulsa OK 74103 918-584-5472
MEGARGEL DRLG CO INC P O Box 356 Megargel TX 76370 817-563-2311
MELTON DRLG CO 7101 Downing Ave Bakersfield CA 93308 805-587-0521
MERCURY DRLG CO 1701 South East 25th Street Oklahoma City OK 73129 405-672-4441
MERIT DRLG CO P O Box 79667 Houston TX 77079 713-789-4014
MESA DRILLERS P O Box 108 Lubbock TX 79408 806-744-1017
MESA DRLG CO INC 241 Pine One Energy Square Suite 7A Abilene TX 79601 915-673-4787
MGF DRLG CO 2626 Richmond Ave Suite B Houston TX 77098 713-526-7336
MICHIGAN CONSOLIDATED GAS CO P O Box 1118 Big Rapids MI 49307 616-796-7909
MIDCO DRLG INC 200 E First Suite 520 Wichita KS 67202 316-265-1808
MIDWEST DRLG LTD 1026 Coolson Ave New Philadelphia OH 44663 216-339-5515
MILLER CONTRACT DRLG INC P O Box 478 Livingston TN 38570 615-823-6425
MITCHELL GEORGE N DRLG CO P O Box 254 Carmi IL 62821 618-382-9343
MOLEN DRLG CO INC P O Box 869 Billings MT 59101 406-252-2391
MONTGOMERY DRLG CO P O Box 2508 Bakersfield CA 93303 403-232-1644
MORAN BROS INC 1000 Petroleum Bldg Wichita Falls TX 76301 817-723-1432
MORAN E W DRLG CO INC 1200 Oil & Gas Bldg Wichita Falls TX 76301 817-322-7891
MORANCO P O Box 1860 Hobbs NM 88240 505-393-7176
MORRISON DRLG & PRODUCING CO One Energy Square Suite 8-B Abilene TX 79601 915-677-8523
MORROW DRLG CO P O Box 4936 Odessa TX 79760 915-333-2875
MOSLEY WELL SERV INC P O Box 970 Minden LA 71055 318-377-2393
MURCO DRLG CO 1908 Beck Bldg Shreveport LA 71101 318-221-7373
MURFIN DRLG CO 617 Union Center Bldg Wichita KS 67202 316-267-3241
MURLYNSON DRLG CO P O Box 185 Alice TX 78332 512-664-3804
MUSTANG DRLG CORP 869 Fair Foundation Bldg Tyler TX 75702 214-597-9381
MUTUAL OF AMERICA INC P O Drawer 1446 Santa Fe NM 87501 505-982-5501

N

N & C DRLG CORP Route 3 Box 3361 Boerne TX 78006 512-755-8333
N E C K DRLG CO Bin X Taft CA 93268 805-769-8811
NABORS ALASKA DRLG INC 324 Eighth Ave SW TD Square Calgary Canada T2P 272 403-263-6610
NELSON DRLG & WELL SERV 1325 American Tower Shreveport LA 71101 318-221-[illegible]890
NEW & HUGHES DRLG CO INC P O Drawer 1487 Natchez MS 39120 601-442-1607
NICKLOS DRLG CO P O Box 752 Eunice LA 70535 713-658-8245
NICOR DRLG CO 500 Reunion Center 9 East 4th Tulsa OK 74103 918-587-5507
NIXON DRLG CO INC P O Box 632 Luling TX 78648 512-875-2416
NOBLE DRLG CORP 1924 So Utica Suite 600 Tulsa OK 74104 918-749-9901
NORMAN DRLG CO Route 8 Box 305 Clarksville TN 37040 615-645-4361
NORTHWEST DRLG CO Route 4 Box 38-A Enid OK 73701 405-234-6771
NORTON DRLG CO 606 Lubbock Natl Bank Bldg Lubbock TX 79401 806-747-3324
NORWOOD A N INC P O Box 310 Midland TX 79702 915-683-3972
NRG DRLG CO P O Box 1432 Owensboro KY 42301 502-685-8118

O

O'CONNOR & YOUNG DRLG CO 1980 So Post Oak Rd Suite 2380 Houston TX 77056 713-961-1107
OILWELL DRLG INC Highway 16 So P O Box 988 Graham TX 76046 817-549-6960
OLIVER E L DRLG CO P O Box 25103 Oklahoma City OK 73125 405-677-2461
ONEAL DRLG CO P O Box 20667 Oklahoma City OK 73120 405-751-3939
OWEN DRLG CO P O Box 861 Magnolia AR 71753 501-234-6300
OWENS JACK SERV CO INC 1626 Del Dayo Drive Camichael CA 90608 916-485-8995

P

PHD DRLG CO 1212 Main Suite 558 Houston TX 77002 713-658-8406
PADRE DRLG CO INC 2501 Suntide Road Corpus Christi TX 78410 512-241-2891
PAR-CO DRLG INC P O Box 873 Natchez MS 39120 601-442-6421
PARAMOUNT DRLG CO INC P O Box 1735 Shreveport LA 71166 318-227-8313
PARKER DRLG CO 8 E Third Street Tulsa OK 74103 918-585-8221
PEARL EXPL INC P O Box 2179 Alice TX 78332 512-664-5772
PEASE BROS INC 120 E Main Vernal UT 84078 801-789-1101
PENROD DRLG CO 3333 First Natl Bank Bldg Dallas TX 75202 214-651-0187
PEP DRLG CO P O Box 824 Mt Vernon IL 62864 618-242-2205
PETE MURPHY DRLG CO P O Box 185 Alice TX 78332 512-664-4540
PETER BAWDEN DRLG INC Garden Grove CA 92645 714-898-0491
PICKRELL DRLG CO 110 N Market Suite 205 Wichita KS 67202 316-262-8427

U.S. Rotary (Land) Drilling Contractors

P (Contd)

PILGRIM DRLG CO P O Box 788 Ardmore OK 73401 405-223-6070
POOL CO 2077 South Gessner Road Houston TX 77063 713-780-4999
PORTER GENE DRLG CO INC P O Box 389 Cushing OK 74023 918-225-1561
POWER RIG DRLG CO INC P O Box 52808 OCS Station Lafayette LA 70505 318-234-4526
PRAIRIE DRLG CO 5710 W Yellowstone Casper WY 82601 307-234-7191
PRC DRLG CO P O Box 1121 Corpus Christi TX 78403 512-884-8763
PRECISION EXPL CO INC P O Box 278 Olney IL 62450 618-395-3096
PROGRESS DRLG & MARINE INC 6001 Savoy Suite 400 Houston TX 77036 713-780-9400
PROJECT 5 DRLG CO INC 2212 Briggs Street Norman OK 73069 405-360-4810
PROVINS T D DRLG CO INC 2111 Enterprise Dr Mt Pleasant MI 48858 517-773-6946
PRUET-RAM CO P O Box 324 Laurel MS 39440 501-863-3612
PULLIAM DRLG CO P O Box 1104 Woodward OK 73801 405-256-4000
PYRAMID OIL WELL SERV P O Box 3225 Santa Fe Springs CA 90670 213-944-6703

Q

QUINTEX DRLG CO INC 1647 E 3rd Street Tulsa OK 74120 918-589-7623

R

RBI DRLG CO LTD 1200 Milam Street Suite 3200 Houston TX 77027
RWIT DRLG CO P O Box 551 Holdenville OK 74848 713-496-5000
RAINBOW DRLG CO INC P O Box 1779 Kilgore TX 75662 214-984-8516
RAINS & WILLIAMSON OIL CO INC 222 W Douglas Suite 435 Wichita KS 67202 316-265-9686
RANGE DRLG CO INC 240 Page Ct 220 W Douglas Wichita KS 67202 316-265-6231
RAPAD DRLG CO P O Box 324 Laurel MS 39440 501-863-3612
RATLIFF DRLG CO INC P O Box 988 Duncan OK 73533 405-255-2916
RAY RESOURCES 630 Commerce Square Charleston WA 25301 304-344-8383
REBEL DRLG CO P O Box 1151 Natches MS 39120 601-446-7831
RED TIGER DRLG CO 1720 Kansas State Bank Bldg Wichita KS 76202 316-263-2371
REMCO DRLG CORP 4131 Meadow Land Bossier City LA 71111 318-742-9595
REPUBLIC DRLG & SERV INC P O Box 27406 Houston TX 77056 713-877-8777
REPUBLIC DRLG CO 11823 E Slawson Ave Santa Fe Springs CA 90670 213-945-3661
REPUBLIC MINERALS CORP P O Box 27406 Houston TX 77027 713-621-8260
RESOURCE DRLG INC 1908 South Post Oak Houston TX 77056 713-871-8550
RHODES & HICKS DRLG CO P O Drawer 1579 Alice TX 78332 512-664-3467
RICHARDS OPERATING CO P O Box 1149 Bay City TX 77414 713-245-8389
RICHARDS-ARMSTRONG INC P O Box 1149 Bay City TX 77414 713-245-8389
RILEY DRLG CO 907 Scurry Big Spring TX 79720 915-267-5635
RINE DRLG CO INC 300 W Douglas Suite 600 Wichita KS 67202 316-267-1333
ROBINSON BROS DRLG CO P O Box 1027 Woodward OK 73801 405-254-3361
ROBINSON DRLG OF TEXAS INC P O Box 311 Big Spring TX 79720 915-267-5297
ROCKHOLD ENGR INC P O Box 698 Great Bend KS 67530 316-729-2506
ROD RIC CORP P O Box 1767 Midland TX 79702 915-682-7880
ROSAMOND DRLG CO INC P O Box 7656 W Monroe LA 71203 318-323-7736
ROTARY DRLG INC 117 East Elm Tyler TX 75702 214-592-8174
ROWAN DRLG - US 5051 Westheimer Houston TX 77056 713-621-7800
ROYOCO DRLG CO P O Box 681 Owensboro KY 42301 502-685-3687

S

SABRE DRLG CO P O Box 1150 Cushing OK 74023 918-225-3502
SAFARI DRLG CORP P O Box 3236 Abilene TX 79604 915-677-2960
SAGE DRLG CO INC 222 Sutton Place Wichita KS 67202 316-263-6139
SAN JACINTO DRLG CO 2014 Pena Street Houston TX 77019 713-227-5353
SANDERS WORKOVER & DRLG CO INC P O Box 1086 New Iberia LA 70560 318-364-1537
SANTA FE DRLG CO (WESTERN) 5400 Andrews Hwy Box 992 Odessa TX 79760 915-367-4181
SANTA FE DRLG CO P O Box 1401 Orange CA 92668 714-558-1300
SAWYER DRLG & SERV INC P O Box 1533 Shreveport LA 71105 318-227-8150
SCANDINAVIAN MONTGOMERY DRLG P O Box 2508 Bakersfield CA 93303 805-327-5736
SCHLENSKER DRLG CORP P O Box 1330 Richardson TX 75080 214-231-8551
SCOTT DON DRLG CO INC P O Box 177 Joesville MI 49250 517-849-9237
SCOTT JERRY DRLG CO INC P O Box 1488 Seminole OK 74868 405-382-2202
SEARCH DRLG CO Wellington SG Office Park Amarillo TX 79109 806-359-7645
SERVICE DRLG CO P O Box 5320 Borger TX 79007 806-273-7573
SH & J DRLG CORP P O Drawer 888 Magnolia AR 71753 501-234-4600
SHARP DRLG CO INC P O Box 1271 Midland TX 79702 915-683-3384
SHAWNEE DRLG CO INC Route 2 Box 44AA Lowell OH 45744 614-373-6384
SHIELDS DRLG CO P O Box 709 Russell KS 67665 913-483-3141
SHILLELAGH CORP P O Box 85 Wichita Falls TX 76307 817-322-7221
SHULER DRLG CO INC 3514 W Hillsboro El Dorado AR 71730 501-863-7234
SIMMONS DRLG INC P O Box 438 Cut Bank MT 59427 406-873-5626
SITTON DRLG CO 503 Lubbock National Bank Bldg Lubbock TX 79401 806-763-4443
SLAWSON DRLG CO INC 200 Douglas Bldg Wichita KS 67202 316-263-3201
SLEDGE GENE DRLG CORP First National Bank Suite 2301 Midland TX 79701 915-683-5261
SLOAN DRLG CO 2825 East Skelly Dr Suite 827 Tulsa OK 74105 918-749-0533
SMART DRLG CO Nine E 4th Street 700 Tulsa OK 74103 918-584-5596
SMITH DRLG CO INC P O Box 150 Lawrenceville IL 62439 618-943-2341
SNYDER DRLG WELL SERV CO P O Box E Hwy 1 South Grayville IL 62844 618-375-2491
SOAPE DRLG CO P O Box 1284 Billings MT 59103 406-252-1341
SOJOURNER DRLG CORP P O Box 3234 Abilene TX 79604 915-672-2832
SOUTH TEXAS DRLG CO 2005 Alamo National Bldg San Antonio TX 78205 512-224-5557
SOUTHLAND DRLG CO INC 9235 Katy Frwy Suite 222 Houston TX 77024 713-461-1995
STAHLCO DRLG CO P O Box 2231 Amarillo TX 79105 806-376-5038
STAR DRLG 2700 Anaconda Tower Denver CO 80202 303-571-4800
STERLING DRLG CO P O Drawer 3068 Midland TX 79702 915-685-3054
STERLING DRLG CO P O Box 129 Sterling KS 67579 316-278-2131
STOEPPELWERTH DRLG INC 2005 Norris Ave McCook NE 69001 308-345-1766
STONE M L DRLG CO P O Box 299 Saratogo TX 77585 713-298-2511
STRATA DRLG INC P O Box 355 Great Bend KS 67530 316-793-7971
SUMPTER & BARKER DRLG CO INC P O Box 1081 Stillwater OK 74074 405-372-4063
SUNDOWN DRLG CO P O Drawer AP Eagle Pass TX 75852 512-773-1173
SWEETMAN DRLG INC 410 One Main Place Wichita KS 67202 316-265-5561

S (Contd)

SWEETWATER DRLG CO INC P O Box 1669 Sweetwater TX 79556 915-235-1781
SYNTEX DRLG CORP One Energy Square Suite 10-LB Abilene TX 79605 915-677-8515

T

TRG DRLG CORP P O Box 20020 Oklahoma City OK 73056 405-755-5002
TWT EXPLORATION INC P O Box 1329 Park City UT 84060 801-649-8212
T & T DRLG CO INC P O Box 4607 Victoria TX 77901 512-578-5228
T-L DRLG CO INC 414 West Phillips Conroe TX 77301 713-756-7726
TAHOE DRLG CO 206 North Main Midland TX 79701 915-682-5325
TASCO DRLG CO P O Box 1075 Ardmore OK 73401 405-226-2054
TAYLOR DRLG CO P O Box 597 Chehalis WA 98532 206-748-3445
TESORO DRLG CO P O Box 2784 Laurel MS 39440 601-425-4312
TEXAS DRLG CO Abilene National Bank Bldg Suite 40 Abilene TX 79603 915-672-7803
TEXLAND DRLG CORP 600 First National Bank Bldg Abilene TX 79601 915-672-2841
THOMAS DRLG CO P O Box 400 Duncan OK 73533 405-255-0250
THOMPSON DRLG CO 4 - Corporate Drive Suite 102 Newport Beach CA 92663 714-644-9292
THUNDERBOLT DRLG INC P O Box 129 Winnsboro TX 75494 214-342-5221
TIERRA DRLG CORP P O Box 3339 Abilene TX 79603 915-677-7291
TOLTEK DRLG CO 340 Denver Club Bldg Denver CO 80202 303-255-5255
TOP DRLG CO INC 2601 Oil Center Bldg Oklahoma City OK 73112 405-521-9737
TORREON DRLG CO INC 805 The 600 Bldg Corpus Christi TX 78473 512-882-1953
TR DRLG CO INC P O Box 4882 Monroe LA 71203 318-388-4191
TRANSCONTINENTAL DRLG CO INC 555 17th Street Suite 2700 Denver CO 80202 303-571-4800
TRANSCONTINENTAL DRLG CO INC 2nd Floor Petroleum Bldg San Angelo TX 76903 915-653-3324
TRANSCONTINENTAL DRLG CO INC 1800 Beck Bldg Shreveport LA 71101 318-226-9577
TRANSWORLD DRLG CO LTD P O Box 25861 Oklahoma City OK 73102 405-270-1313
TREND DRLG CO P O Box 3310 Enid OK 73701 405-233-7838
TRI SERVICE DRLG CO P O Drawer 70 Midland TX 79702 403-453-3771
TRI-J DRLG CO P O Box 5338 Abilene TX 79605 915-684-6641
TRI-LAND DRLG CO P O Box 18605 Oklahoma City OK 73154 405-528-1463
TRIAD DRLG CORP 1100 Bitting Bldg Wichita KS 67202 316-263-0232
TRIANGLE DRLG CO 901 South Denver El Dorado KS 67042 316-321-3126
TRIGG DRLG CO INC P O Box 18605 Oklahoma City OK 73118 405-528-4456
TRUE DRLG CO P O Drawer 2360 Casper WY 82602 307-237-9301
TUCKER DRLG CO INC P O Box 1876 San Angelo TX 76901 915-655-6773
TURNER-WINTER DRLG & EXPL CO Route 1 Box 11-A Nowata OK 74048 918-273-1874
TWO R DRLG CORP P O Box 1968 Houma LA 70361 504-876-6987

U

URC DRLG CORP 2601 NW Expy Oil Center E #700 Oklahoma City OK 73112 405-840-2761
UNDERWOOD OIL WELL SERV INC 731 Lakeshore Drive Monroe LA 71203 318-343-2665
UNION DRLG INC P O Drawer 40 Buckhannon WV 26201 304-472-4610
UNIT DRLG & EXPL CO 1101 Petroleum Club Bldg Tulsa OK 74136 918-582-3188
UNITED DRLG CO OF TYLER Route 1 Box 924-Hwy 155N Tyler TX 75708 214-877-3411
UNIVERSAL DRLG CO 14 Sky Ranch Road Aurora CO 80011 303-341-4921

V

VECO DRLG INC P O Box 1705 Grand Junction CO 81501 303-242-6912
VENTURE DRLG CO P O Box 1353 Cushing OK 74023 918-225-3260
VERNA DRLG CO P O Box 952 Odessa TX 79760 915-381-0910
VI-ROI DRLG CO P O Box 1624 Duncan OK 73533 405-255-4566
VIERSEN & COCHRAN DRLG CO P O Box 19227 Oklahoma City OK 73144 405-681-6611

W

WEK DRLG CO INC P O Box 1498 Roswell NM 88201 505-623-5070
WES CORP 5710 W Yellowstone Casper WY 82601 307-234-0669
WAKEFIELD EARL F INC 300 W Douglas Suite 500 Wichita KS 67202 316-264-2366
WARREN INTERSTATE DRLG CO 906 Utica Tower Tulsa OK 74104
WARRIOR DRLG CO 5015 N Pennsylvania Oklahoma City OK 73112 405-840-1783
WARRIOR DRLG INC 905 Century Plaza Wichita KS 67202 316-262-3791
WARRIOR DRLG & ENGR CO INC 4200 Crabbe Rd Hwy 69 North Northport AL 35476 205-339-9700
WARTON DRLG CO P O Box 3747 Odessa TX 79760 915-362-0251
WEAL DRLG CO INC P O Box 140 Carmi IL 62821 618-382-7713
WELSH DRLG & SERV INC P O Box 45858 Houston TX 77045 713-433-4551
WES MOR DRLG INC P O Box 1169 Graham TX 76046 817-549-3383
WES-TEX DRLG CO P O Box 2895 Abilene TX 79604 915-677-9121
WESTBURNE DRLG INC 424 Republic Bldg 1612 Tremon Denver CO 80202 303-572-3055
WESTERN WELL DRLG INC 11299 Brighton Road Henderson CO 80640 303-288-2247
WHELESS DRLG CO 920 Commercial National Bank Bldg Shreveport LA 71101 318-222-3137
WHITE & ELLIS DRLG INC 401 E Douglas Suite 500 Wichita KS 67202 316-321-5050
WHITEHEAD E E DRLG CONTR P O Box 662 Drumright OK 74030 918-352-2230
WILCOX DRILLERS INC P O Box F F Natchez MS 39120 601-446-5021
WILLBAOS DRLG INC P O Box 10727 Midland TX 79703 915-692-3166
WILLIS DRLG CO INC P O Box 479 Edinburg TX 78539 512-383-3888
WILSON BROS DRLG CO P O Drawer 53628 Lafayette LA 70505 318-233-5950
WOOLF & MAGEE INC P O Box 6566 Tyler TX 75711 214-561-4051
WYOMING WELL SERV INC P O Box 350 Cody WY 82414 307-587-4249

X

XPLOR DRLG CO P O Box 18611 Wichita KS 67207 316-685-5372

Y

YOUNG DRLG CO P O Box 717 Farmington NM 87401 505-327-5218

Z

ZENITH DRLG CORP INC 505 Fourth Financial Center Wichita KS 67202 316-265-6697

U.S. Contract Rotary (Land) Drilling Rigs

ALABAMA

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drawworks	Rated Depth with 4½" Pipe
BALDWIN						
Justis-Mears Oil Co Inc	24	dsl	3600	Emsco J-1400	3060	22,000
Penrod Drlg Co	5	dsl-elec	3425	Emsco C-3	3200	30,000
CHOCTAW						
Tesoro Drlg Co	5		2000	National 80-B	1650	15,000
CLARKE						
Lama Drlg Co Inc	8	dsl	1300	National 100	1300	14,000
Penrod Drlg Co	106	dsl	1575	National 80-B	1760	15,000
	16	dsl	3075	Brewster N-12-A	1840	20,000
ESCAMBIA						
Chesley Pruet Drlg Co	16	dsl	3600	Con Emsco C-2	3600	30,000
FAYETTE						
Lohmann-Johnson Co Inc	9	dsl	300	National T-12	300	3,500
Warrior Drlg & Engr	4	dsl	145	Cardwell M-K	600	4,000
LAMAR						
Warrior Drlg & Engr	3	dsl	600	Gar-Den GD-500	600	9,650
MOBILE						
Exeter Drlg Southern Inc	32	dsl	2800	Gardner-Denver 1500	2800	25,000
Noble Drlg Corp	OW-21	dsl-elec	2800	OILWELL E-2000	2000	25,000
Penrod Drlg Co	12	dsl	3850	Gar-Den 1500	2120	20,000
Resource Drlg Inc	6	dsl	2330	National 110	2740	18,000
MONROE						
Noble Drlg Corp	N-131	dsl	2200	National 130	1625	20,000
WASHINGTON						
Murco Drlg Corp	10	dsl	2200	Brewster N-95	2400	20,000
Penrod Drlg Co	110	dsl	1600	National 1625-M	2200	

ALASKA

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drawworks	Rated Depth with 4½" Pipe
UNDESIGNATED						
Brinkerhoff Drlg Co Inc	36	dsl	2100	National 110	2100	18,000
NATIONAL PETROLEUM RESERVE						
Parker Drlg Co	95	dsl	1800	National 130	1800	25,000
NORTH SLOPE						
Loffland Bros Co	162	dsl	2160	National 110	2400	20,000
Nabors Alaska Drlg Inc	25	dsl	2000	National 110	3000	19,000/5"
	1	cat	1700	Emsco A-800	1800	16,000
	17	dsl	2000	OILWELL 860	1740	19,000/5"
	18-E	dsl-elec	2000	Emsco Electrohoist	3900	25,000
	22-E	dsl-elec	3200	Emsco II-C Electrohoist	3600	25,000
Nabors Well Serv Inc	1-ES	dsl-elec	500	Emsco Electrohoist C-II	1800	20,000
Parker Drlg Co	128-HH	dsl	1100	OIME TBA-2000	1100	20,000
	135-HH/23	dsl	1500	OIME TBA-2000	1700	20,000
	141	dsl	1250	OIME TBA-2000	1800	20,000
	176	elec	2600	OIME 2000-E	3600	20,000
	191	dsl	4000	OIME 3000-E	4000	30,000
	96	dsl	2000	National 130	2000	25,000
	97	dsl	1500	National 80-B	1950	18,000
Rowan Drlg US	26	dsl	2000	National 110	1590	18,000
	29	dsl	1850	National 110	2400	20,000
	34	dsl-elec	2000	National 110-EH Special	3000	17,000
	35	dsl-elec	2000	National 110-EH Special	3000	17,000
WEST ARCTIC						
Parker Drlg Co	147	dsl	1500	OIME TBA-2000	1700	20,000

ARIZONA

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drawworks	Rated Depth with 4½" Pipe
PINAL						
Morrow Drlg Co	2	dsl	680	Morrow 350	350	4,000
Parker Drlg Co	166	elec	3000	OIME 3000-E	3000	30,000

ARKANSAS

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drawworks	Rated Depth with 4½" Pipe
COLUMBIA						
Kern Drlg Co Inc	1	dsl	350	Emsco GB-250-T	350	6,500
	2	gas	500	Emsco GB-350	500	8,500
	4	gas	700	Emsco GB-500	700	9,500
N & C Drlg Corp	1	dsl	2000	OIME SL-1000	1200	15,000
SH & J Drlg Corp	3	dsl	807			7,300
Sawyer Drlg & Serv Inc	2	dsl	400	Brewster N-4	400	8,500
CRAWFORD						
Astro Drlg Co	22	dsl	920	Bethlehem M-58	920	12,000
Miller Drlg Co	14	dsl	600	National 50	600	10,000
FRANKLIN						
Miller Drlg Co	105	gas	300	Brewster N-3	145	3,800
JOHNSON						
Astro Drlg Co	18	dsl	556	Ideco H-1000	940	12,000

ARKANSAS (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drawworks	Rated Depth with 4½" Pipe
JOHNSON (Cont'd)						
Miller Drlg Co	101	gas	450	National 50	450	7,000
	104	gas	450	National 50	450	8,000
	107	gas	450	Unit 15	450	8,500
Unit Drlg & Expl Co	10	unit U-15	1000	Beth M-58	1200	14,000
LAFAYETTE						
Kern Drlg Co Inc	7	dsl	1020	OILWELL 76	1020	12,500
Layton Oil Co	8	dsl	450	Cooper	300	6,500/3½"
Owen Drlg Co	7	dsl	635	Ideco H-35	504	5,000
SH & J Drlg Corp	2	btne	885	Brewster N-7	750	9,500
MILLER						
Justis Mears Oil Co Inc	25	dsl	250	Emsco GC-350	450	12,000
Rosamond Drlg Co	5	dsl	1450	Bethlehem MC-450	1275	13,500
SH & J Drlg Corp	1	dsl	807	Cardwell O	800	10,000
Sawyer Drlg & Serv Inc	5	dsl	1500	Brewster N-75	1500	13,000
POLK						
Miller Drlg Co	112	dsl	350	Spencer-Harris 6000	300	6,000
POPE						
Miller Drlg Co	15	dsl	600	Spencer Harris	600	8,500
QUACHITA						
H F Hatcher & Son	3	gas	250	Wilson Mogul 42	225	5,000
SEBASTIAN						
Miller Drlg Co	102	gas	675	M-CSCO U-15	675	12,000
	103	gas	600	National 50	600	10,000
UNION						
Kern Drlg Co Inc	5	dsl	1050	OILWELL 76	1050	11,500
Shuler Drlg Co Inc	1	dsl	300	Brewster N-R	325	325
	3	dsl	300	Wilson Mogul	325	5,000
	4	gas-btne	600	Wilson Giant	600	8,000
	5	dsl	325	Spencer	350	5,000
	6	dsl	600	Wilson Giant	600	8,000
	7	dsl	400	Spencer-Harris 600		6,000
	8	dsl	450	Spencer-Harris 7000	400	7,000

CALIFORNIA

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drawworks	Rated Depth with 4½" Pipe
UNDESIGNATED						
Bawden Drlg Inc	38	dsl	2100	OILWELL 940-E	1500	8,500/5"
COLUSA						
Hunnicutt & Camp Drlg Co	4	dsl	960	OILWELL 66	640	11,000/4"
	5	dsl	960	Ideco 525	480	9,000/4"
Loffland Bros Co	232	dsl	1000	M-CSCO U-15	1000	12,000
FRESNO						
Montgomery Drlg Co	14	dsl	1200	OILWELL 66	700	10,500/5"
HUMBOLDT						
Owen Jack Serv Co Inc	4	dsl	225	Ideco H-35	150	4,000
IMPERIAL						
Republic Drlg Co	6	dsl	1800	Brewster N-95	1800	18,000
KERN						
Atlantic Oil Co	10	dsl	680	National T-32	370	6,000
	16	dsl	1000	National 130	2475	20,000
	3	dsl	680	Ideco H-40	370	5,500
	5	dsl	680	National 50-A	680	9,000
Barnes Core Drlg Co	711-D	dsl	750		450	5,500
	D-6	dsl	750	Custom	450	5,500/3½"
Big-O Drlg	3	dsl	1100	National 100	1650	13,500
	5	dsl-elec	3200	Ideco Super 711	1600	18,000
	2	dsl	1200	National 75-CA	1200	10,500
Brea Drlg Co	1	dsl	165	Howard Turner	165	2,500
California Prod Serv Inc	M-17	dsl	300	Cardwell K-200-C	308	4,000
Cleveland Drlg Co	2	dsl	600	Sky/Brewster RR-400	450	5,000
Edwards Well Serv	D-30	dsl		Ideco	300	
Gary Drlg Co	1	dsl	450	Hopper	400	5,000
	D-12	dsl	382	Emsco GB-150-T	300	4,500
	D-13	dsl	450	Emsco GB-16-T	300	4,500
	D-30	dsl	300	Ideco 35		
	D-4	dsl	475	Emsco GB-160-T	450	4,500
	D-5	dsl	382	Hopper GT-34	300	2,500
	D-6	dsl	600	Emsco GB-160-T	400	4,500
	D-7	dsl	381	Gary Drlg	200	2,000
	D-8	dsl	450	Emsco GB-160-T	400	4,500
	D-2	dsl	800	National T-45	600	9,000
Golden State Drlg Inc	D-10	dsl	750	Custom Howard Turner	450	5,500/3½"
	D-10	dsl	750	Custom Howard Turner	450	5,500
	D-6	dsl	750	Custom Howard Turner	450	5,500

CALIFORNIA (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drawks	Rated Depth with 4½" Pipe
KERN (Cont'd)						
Hunnicutt & Camp Drlg Co	3	dsl	960	National CA-50	640	10,500/4"
Hylton Drlg Co	1	dsl	380	National T-12	300	4,000
	4	dsl	380	Howard Turner MR-10	150	3,000
	5	dsl	380	Ideco H-30	300	5,000
	7	dsl	300	National T-12	280	4,000
	8	dsl	380	Ideco H-30	300	5,000
Kenai Drlg West Coast Inc	6	dsl	400	Ideco H-40	400	6,500
	8	dsl	800	Wagner Morehouse T-2054	[illegible]	6,500
	8	dsl	875	Wagner Morehouse T-5054	[illegible]	7,000
Loffland Bros Co	16	dsl	1425	M-CSCO U-914-C	1600	18,000
	6	gas	1300	M-CSCO U-914-C	1600	14,000
Marlin West	Marlin 11	dsl-elec	2000	National 110	1600	14,000
	Marlin 12	dsl-elec	2000	National 110	1600	14,000
Montgomery Drlg Co	5	dsl-elec	2700	National 1320-UE	3645	25,000/5"
	1	dsl-elec	3200	National 1320-UE	3645	25,000/5"
	17	dsl-elec	2000	OILWELL 940-E	2000	20,000/5"
NECK Drlg Co	1	gas	350	Wilson Super	350	4,000
	2	gas	450	Wagner Morehouse	450	6,000
Pyramid Oil Co	15	dsl	400	Ideco H-30	300	3,000
Scandinavian Montgomery Drlg	3	dsl	1200	National 75	700	1,200/5"
	8	dsl	1200	National 75	700	1,200/5"
LAKE						
Atlantic Oil Co	11	gas		National 80-B	1350	14,000
	6	gas		National 80-B	1680	14,000
Montgomery Drlg Co	6	dsl	1400	Emsco GB-800	1200	13,000/5"
LOS ANGELES						
Atlantic Oil Co	15	dsl	680	National T-32	340	6,000
	8	gas	650	National T-32	370	6,000
Big Chief Drlg Co	18	dsl	500	Hopper GXTTA	450	6,000
Big-O Drlg Inc	4	dsl	1100	National 75-CA	900	12,500
	1	dsl	1200	OILWELL 66	800	9,500
California Prod Serv Inc	D-6	dsl	500	Hooper MTA	461	4,500
	D-7	dsl	1000	Hopper MTA	654	6,500
Finley Oilwell Serv Inc	11	dsl	736	Ideco H-30	318	3,500
	6	dsl	736	Ideco H-40	475	5,500
Gary Drlg Co	D-3	dsl	628	Emsco G-350	600	8,000
K L Kellogg & Sons	38	elec	1000	National 75	700	11,000
Kenai Drlg West Coast Inc	30	dsl	800	Ideco H-40	400	6,000
	2	dsl	2000	Emsco J-1250	2000	15,000
	29	dsl	900	Wilson Giant	1200	10,000
	30	dsl	800	Ideco H-40	400	6,500
	6	dsl	875	Emsco J-750	800	10,500
Peter Bawden Drlg Inc	10	dsl-elec	1500	OILWELL 940-E	1500	14,000
Pool Well Serv Co	38	dsl	520	Cabot 550	550	5,500
MONTEREY						
Gary Drlg Co	D-10	dsl	628	Hopper	400	5,500
	D-9	dsl	628	Franks	400	5,500
Melton Drlg Co	3	dsl	350	Wagner-Morehouse	350	4,000
ORANGE						
Atlantic Oil Co	12	dsl	850	National 50-A	680	9,000
	2	gas	1260	National 55	1260	11,000
	4	gas	900	National 55	900	10,000
Kenai Drlg West Coast Inc	24	elec	950	Wilson-Titan	1000	13,000
Loffland Bros Co	92	dsl-elec	2160	M-CSCO U-914-CE	2200	18,000
Thompson Drlg Co	2	dsl	900	Emsco GA-250-T	450	6,500
SAN JOAQUIN						
Owen Jack Serv Co Inc	2	dsl	150	Ideco H-38	350	4,000
Scandanavian Montgomery Drlg	11	dsl	1000	Emsco GB-800	1000	12,000/5"
	9	dsl-elec	2200	National 1320-UE	3000	22,000/5"
SANTA BARBARA						
Challenger Drlg	30-E	dsl-elec	3000	National 1320-UE	2400	25,000/5"
Kenai Drlg West Coast Inc	24	elec	800	Wilson Titan	1200	10,000
	29	dsl	1200	Wilson Giant		12,000
	4	dsl	800	Ideco	400	6,000
	5	dsl	800	National T-32	400	6,500
	9	dsl	800	Ideco H-400	400	6,000
	4	dsl	800	Ideco H-40-D	400	6,500
	5	dsl	800	National T-32	400	7,000
	7	dsl	800	Unit U-10	400	7,000
SHIELLS CANYON						
Peter Bawden Drlg Inc	27	dsl-elec	1500	Emsco 550-WE	750	12,000
SOLANO						
Cleveland Drlg Co	1	dsl	1200	OILWELL 96	1200	18,000
Owen Jack Serv Co Inc	3	dsl	150	Ideco H-35	150	2,500
	6	dsl	300	Ideco H-35	300	4,000
Peter Bawden Drlg Inc	11	dsl-elec	1706	Emsco A-800-WE	1000	12,000
SONOMA						
Loffland Bros Co	105	dsl-elec	2160	M-CSCO U-914-EC	2200	18,000
	27	dsl-elec	2160	M-CSCO U-20	2400	18,000
	50	dsl-elec	1420	M-CSCO U-712-A	1600	17,000
SUTTER						
Peter Bawden Drlg Inc	23	dsl-elec	1700	Emsco A-800-UE	1000	14,000

CALIFORNIA (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drawks	Rated Depth with 4½" Pipe
UNDESIGNATED						
Atlantic Oil Co	14	dsl		Ideco H-35		5,000
VENTURA						
California Prod Serv Inc	D-1	dsl	500	Hopper GXXTA	461	4,000
	D-3	dsl	300	Ideco H-37-D	461	4,500
	D-4	dsl	500	Hopper MTA	461	4,500
Gary Drlg Co	D-11	dsl	600	Emsco C-50	600	8,000
Kenai Drlg West Coast Inc	9	dsl	800	Ideco H-40-D	400	6,500
Loffland Bros Co	185	gas	1600	M-CSCO U-914-C	1900	17,000
	212	gas	1420	M-CSCO U-914-A	1600	18,000
	217	gas	1600	M-CSCO U-914-C	1900	18,000
Peter Bawden Drlg Inc	22	dsl-elec	1400	Emsco M-58	800	10,000
YOLO						
Atlantic Oil Co	7	gas	650	National T-32	450	6,000
Hunnicutt & Camp Drlg Co	1	dsl	950	National T-32	320	9,000/3½"
	2	dsl	1520	OILWELL 660	880	12,500/4"
Owens Jack Serv Co Inc	5	dsl	150	Ideco H-25	300	4,000

COLORADO

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drawks	Rated Depth with 4½" Pipe
ADAMS						
Allison Drlg Co Inc	15	dsl	600	Brewster N-7	600	10,000
Exeter Drlg Northern Inc	6	dsl	330	National T-20	300	6,000
	2	dsl	375	Emsco GA-250	460	7,500
BACA						
Gabbert-Jones Inc	11	dsl	310	National T-20	275	5,000
Murfin Drlg Co	12	dsl	375	Bethlehem C-50	500	7,500
BOULDER						
Toltek Drlg Co	2	dsl	680	National 50	875	9,000
ELBERT						
Allison Drlg Co Inc	25	dsl	600	Wilson 38	600	10,000
GARFIELD						
Loffland Bros Co	12	dsl	840	Ideco Hydrair H-44-CSC	868	8,000
R L Manning Co	24	dsl	860	Brewster N-75	860	11,000
Veco Drlg Inc	2	dsl	425	Mayhew 5000	500	7,000
KIOWA						
Murfin Drlg Co	14	dsl	375	T-45	600	8,000
LA PLATA						
Brinkerhoff Drlg Co Inc	61	dsl	520	Ideco H-37	465	6,000
Brinkerhoff-Signal Inc	76	dsl	800	Gardner-Denver M-500	800	10,000
Cactus Drlg Corp	18	dsl	920	National T-32	626	8,000
Coleman Drlg Co	2	dsl	1100	Ideco H-40-D	636	8,000
	4	dsl	1300	Skytop/Brewster MOD-N-46	930	10,000
LAS ANIMAS						
Loffland Bros Co	223	dsl	1260	M-CSCO U-15	1000	9,000
LOGAN						
Exeter Drlg Northern Inc	13	dsl	350	Brewster N-4	300	6,000
Toltek Drlg Co	3	dsl	680	Brewster N-4	440	8,000
MESA						
Calvert Western Expl Co	9	dsl	900	National 300-B	350	5,000
Nicor Drlg Co	36	dsl	1200	Gardner-Denver 500	950	11,000
Tom Brown Inc	17	dsl	375	M-CSCO U-15-CA	500	9,000
Veco Drlg Inc	1	dsl	400	Failing 90	400	5,000
	4	dsl	600	M-CSCO	450	7,500
	5	dsl	1400	OIME 750	750	11,000
MOFFAT						
Atco Drlg Inc	28	dsl	400	National T-32	326	8,000/4"
Loffland Bros Co	186	dsl	2160	M-CSCO U-914-C	2400	20,000
	5	dsl	1220	Ideco H-1000	868	12,000
Parker Drlg Co	112	dsl	2700	Ideco 3000	2700	30,000
MORGAN						
Allison Drlg Co Inc	2	dsl	300	Cardwell KB-500	300	7,500
J W Gibson Well Serv Inc	84	dsl	550	Cabot/Franks 2042	700	10,000
	93	dsl	450	Franks M-1287	450	6,000
	75	dsl	450	Cardwell K-8500	450	8,000
PUEBLO						
Baski Drlg Inc	7	dsl	450	Ideco H-30-D	350	5,000
RIO BLANCO						
Atco Drlg Inc	18	dsl	326	326	320	8,000/4"
R L Manning Co	19	gas-btne	925	Bethlehem M-58	910	10,000
	23	dsl	800	Brewster N-45	654	7,500
Tierra Drlg Corp	16	dsl	650	Brewster 4/10	750	10,000
Veco Drlg Inc	7	dsl	1550	OIME 1000	1000	16,000
SAN JUAN						
Arapahoe Drlg Co	7	gas-btne	700	National T-45	700	10,000
SAN MIGUEL						
Brinkerhoff Drlg Co Inc	26	dsl	1170	National 55	1170	10,500
WASHINGTON						
Allison Drlg Co Inc	3	dsl	300	Cardwell KB-500	300	7,500

COLORADO (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
WASHINGTON (Cont'd)						
Teltek Drlg Co	1	dsl	440	Brewster N-4	440	7,000
WELD						
Allison Drlg Co Inc	1	dsl	450	Ideco 800	900	12,000
Exeter Drlg Northern Inc	1	dsl	500	National 50-A	750	9,500
	12	dsl	500	National T-45	750	9,500
	22	dsl	500	M-CSCO U-15	750	9,500
	25	dsl	375	M-CSCO U-15	480	8,500
	4	dsl	375	National T-32	460	8,000
YUMA						
Excell Drlg Co	2	dsl	275	Ewbanks	175	3,000
Western Well Drlg Inc	D-1	dsl	350	Falling 2000	350	2,500
	D-2	dsl	350	Failing H-2000	350	3,500

FLORIDA

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
SANTA ROSA						
Penrod Drlg Co	15	dsl	3000	Gardner Denver 2100	2200	30,000
	19	dsl	2600	National 1320-M	3425	25,000

IDAHO

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
CARIBOU						
Loffland Bros Co	57	dsl-elec	1800	National 80-B	2000	16,000

ILLINOIS

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
CLAY						
Precision Expl Co Inc	2	dsl	400	National T-20	400	6,500/3½"
	5	dsl	400	National T-12	385	4,500
COOK						
Progress Drlg & Marine Inc	46	dsl-shaft	1000	Hughes CSD-820	400	2,000
CRAWFORD						
Gwaltney Drlg Inc	1	dsl	200	National T-12	165	3,000
EDWARDS						
Precision Expl Co Inc	1	dsl	400	National T-20	400	6,500/3½"
FRANKLIN						
Brahm Oil	1	dsl	602	M-CSCO U-15	602	9,000
GALLATIN						
Geo N Mitchell Drlg Co	4	dsl	400	Brewster N-4	400	6,000
	5	dsl	400	Brewster N-4	400	6,000
HAMILTON						
Gallagher Drlg Inc	7	dsl	350	National T-20	475	5,000
	7	dsl	350	National	475	6,000
MARION						
Geo N Mitchell Drlg Co	6	dsl	400	Wilson 38	400	4,000
Maz-Kar Oil Co	1	dsl				4,000
Nicor Drlg Co	20	gas	160	Falling 2500	260	25,000
RICHLAND						
Precision Expl Co Inc	3	dsl	400	National T-16	400	6,500/3½"
SALINE						
Big Seven Drlg Co	7	dsl	300	Emsco GB-250	380	6,000
	11	dsl	300	Emsco GB-160	300	4,000
UNDESIGNATED						
D L Davis Drlg Co Inc	1	dsl	200	Wilson Mogul	200	3,000
WABASH						
Beard Drlg Co	1	dsl	350	National T-12	350	4,500
Smith Drlg Co Inc	2	dsl	225	National T-8	238	2,500/3½"
WAYNE						
	9	dsl	320	National T-12	320	4,000
Barr Drlg Corp	1	dsl	378	National T-12	286	4,500
Brehm Oil	3	dsl	602	Brewster N-45	602	9,000
Gallagher Drlg Inc	4	dsl	500	Bethlehem S-45-E	476	6,000
Precision Expl Co Inc	4	dsl	400	National T-20	400	5,500
WHITE						
Brehm Oil	4	dsl	602	National T-20	602	9,000
Geo N Mitchell Drlg Co	7	dsl	400	Ideco 35	400	6,500
Harris Drlg Co	1		360	National T-12	320	4,000
	4	dsl	500	National 50	360	6,000
Kendall Drlg Co Inc	2	dsl	400	Brewster N-4	360	5,500
Snyder Drlg Well Serv Co	2	dsl	365	Bethlehem 545	325	6,500
	1	dsl	350	Brewster N-4	350	6,000

INDIANA

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
GIBSON						
Royco Drlg Co	1	dsl	300	Cardwell	335	5,500
Smith Drlg Co Inc	7	dsl	250	Gardner Denver 2500	225	3,500/3½"
POSEY						
Gallagher Drlg Inc	5	dsl	300	National T-12	310	3,500
Kendall Drlg Co Inc	3	dsl	300	Brewster N-4	300	5,500
VANDERBURG						
J-V Drlg Co Inc	6	dsl	145	Speedstar SS-15-S	145	1,600/2⅞"
WARRICK						
J-V Drlg Co Inc	9	gas	85	Franks F	85	600/2⅞"

INDIANA (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
WAYNE						
Geo N Mitchell Drlg Co	1	dsl	400	S-45-A	400	6,000

KANSAS

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
UNDESIGNATED						
Serch Drlg Co	1	dsl	340	National T-32	340	6,000
ALLEN						
Carter Land & Cattle Co Inc	1	dsl	250	Gardner Denver 1000	350	1,000
ANDERSON						
Carter Land & Cattle Co Inc	3	dsl	250	Gardner Denver 1000	350	1,000
BARBER						
Damac Drlg Inc	2	dsl	350	Wilson Giant	350	6,000
Graves Drlg Co Inc	1	dsl	300	Brewster N-4	400	6,000
H-30 Drlg Inc	77	dsl	375	Ideco H-40	500	8,000
Rains & Williamson Oil Co Inc	3	dsl	360	Brewster N-R	400	6,700
Slawson Drlg Co Inc	5	dsl	360	Ideco H-525	480	7,500
Sweetman Drlg Inc	1	dsl	750	National 370	750	9,000
Xplor Drlg Co	1	dsl	750	National T-32	750	8,500/4"
BARTON						
Bergman Drlg Inc	1	dsl	300	Emsco	300	5,500
Damac Drlg Inc	1	dsl	350	Wilson Giant	350	5,500
Duke Drlg Co	1	dsl	375	Unit	375	5,000
	2	dsl	250	National	250	5,000
L D Drlg Co	1	dsl	410	Bethlehem S-45-A	300	4,600
Red Tiger Drlg Co	4	dsl	700	Emsco Gas 250 Drawworks	700	5,000
	8	dsl	700	Emsco GA-250-T	700	5,000
Sage Drlg Co Inc	1	dsl	400	National T-32	400	6,500
White & Ellis Drlg Inc	2	dsl	425	Emsco GA-250	335	4,500
BUTLER						
Brandt Drlg Inc	1	dsl	350	Bethlehem S-50	335	4,500/3½"
Range Drlg Co Inc	1	dsl	360	Franks SAL-4500	440	3,500
Triangle Drlg of El Dorado	1	dsl	250	M-CSCO U-34	300	4,500
	2	dsl	335	M-CSCO U-34	300	4,500
White & Ellis Drlg Inc	3	dsl		National T-12		
	4	dsl		Emsco GA-250		
	5	dsl		Emsco GA-150		
CLARK						
Eagle Drlg Inc	1	dsl	8000	National 370	650	7,000
Pickrell Drlg Co	1	dsl	450	M-CSCO U-15	450	6,500
Rine Drlg Co	8	dsl	700	Brewster N-55	700	8,500
COMANCHE						
Gabbert-Jones Inc	6	dsl	275	National T-32	275	5,500
COWLEY						
Edco Drlg Co	6	dsl	400	Cardwell	290	4,500
Range Drlg Co	2	dsl	350	Wilson Giant	350	5,500
White & Ellis Drlg Inc	7	dsl	335	Unit U-34	425	4,000
DECATUR						
Excell Drlg	1	dsl	370	Cabot	175	3,000
EDWARDS						
D R Lauck Oil Co Inc	2	dsl	350	Brewster N-45	400	6,000
H-30 Drlg Inc	11	dsl	375	Ideco H-30	312	5,500
Sterling Drlg Co	4	dsl	450	M-CSCO U-15	285	5,000
ELK						
Edco Drlg Co	1	dsl	350	Sullivan	150	2,500
	3	dsl	150	Cardwell	150	800
ELLIS						
Buffalo Drlg Inc	1	dsl	500	Brewster N-4	400	6,000
C & R Drlg Co	7	dsl	425	National 370	425	7,500
Dreiling Oil Inc	1	dsl	320	Bethlehem C-50	440	6,000
	3	dsl	320	Brewster N-4	320	4,500
Murfin Drlg Co	8	dsl	300	National T-20	300	4,500
Red Tiger Drlg Co	9	dsl	700	Unit U-10	700	6,000
Shields Drlg Co Inc	2	dsl	300	Bethlehem C-50	300	5,500
FINNEY						
Abercrombie Inc	6	dsl	365	Ideco H-35	365	6,000
FORD						
Gabbert-Jones Inc	9	dsl	275	National T-32	310	5,500
GOVE						
Slawson Drlg Co Inc	3	dsl	480	Ideco H-35	480	7,000
GRAHAM						
Abercrombie Drlg Inc	1	dsl	365	M-CSCO U-34	365	5,000
	7	dsl	365	M-CSCO U-34	365	5,000
John O Farmer Inc	4	dsl	400	Ideco H-30	400	5,000
Murfin Drlg Co	16	dsl	300	Emsco S-45-E Bethlehem	300	5,000
GRAY						
Slawson Drlg Co Inc	6	dsl	360	Ideco H-525	480	7,500
GREENWOOD						
Edco Drlg Co	2	dsl	318	Sullivan 318	290	2,500

KANSAS (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
GREENWOOD (Contd)						
Edco Drlg Co	4	dsl	117	Diesel	280	4,500
HARPER						
Dunbar Drlg Co	3	dsl	300	Cardwell Model D	300	7,000
Gebbert-Jones Inc	8	dsl	310	National T-32	310	5,500
Slawson Drlg Co Inc	4	dsl	6500	Ideco H-30	360	7,500
HASKELL						
Damac Drlg Inc	6	dsl	550	Cabot BIR-550	450	6,000
HODGEMAN						
Freeman Drlg Co Inc	1	dsl	375	Ideco H-40	500	8,000
Rains & Williamson Oil Co Inc	2	dsl	360	OILWELL 52-T	400	6,700
White & Ellis Drlg inc	8	dsl	535	Emsco 350	670	7,500
KEARNY						
Service Drlg Co	10	dsl	454	M-CSCO	450	5,500
KINGMAN						
Brandt Drlg Inc	2	dsl	350	National 320	600	5,500
Red Tiger Drlg Co	1	dsl	450	Unit U-15	450	6,000
KIOWA						
Abercrombie Drlg Inc	11	dsl	600	Emsco 350	700	7,500
DNB Drlg Inc	2	dsl	500	National T-32	450	6,500
D R Lauck Oil Co Inc	1	dsl	350	M-CSCO U-15	400	6,000
H-30 Drlg Inc	5	dsl	510	Ideco H-35	510	6,500
White & Ellis Drlg Inc	9	dsl	535	Skytop Brewster N-46	950	10,500
LANE						
C-G Drlg Co Inc	1	dsl	300	Emsco GB-250-T	300	5,000
MARION						
Dunbar Drlg Co	1	dsl	250	Wilson	300	3,000/3½"
Kan-Go Inc	K3-B	dsl	365	Cabot/Franks	300	4,000
MC PHERSON						
Berentz Drlg Co	1	dsl	350	National T-12	325	3,500
	3	dsl	350	National T-12	350	3,500
Blackstone Drlg Inc	2	dsl	300	National T-20	300	4,000
	3	dsl	300	450-T BDW	300	5,000
MEADE						
Moran Drlg Corp	63	dsl	1050	National T-45	800	10,000
Sage Drlg Co Inc	2	dsl	400	OILWELL T-52	400	6,700
	7	dsl	400	Emsco 350	400	8,000
Zenith Drlg Corp Inc	7	dsl	550	Brewster N-4	500	7,000
MIAMI						
Dakota Drillers Inc	1	dsl	250	Portadrill	250	1,500
MONTGOMERY						
Layton Oil Co	2	dsl	180	Failing 1500	100	1,500/2⅞"
Turner-Winter Drlg Expl Co	2	dsl	900	Jaswell J-2400	900	2,400
MORTON						
Earl F Wakefield Inc	7	dsl	640	Emsco GB-160-T	640	5,000
Lohmann-Johnson Drlg Co Inc	11	dsl	325	National 50	600	6,000
Service Drlg Co	2	dsl	454	M-CSCO U-34	454	6,000
NEOSHO						
Carter Land & Cattle Co Inc	2	dsl	250	Gardner Denver 1000	350	1,000
NESS						
Abercrombie Drlg Inc	12	dsl	365	Beth Freeze	300	5,500
Pickrell Drlg Co	10	dsl	375	M-CSCO U-15	375	5,500
Rains & Williamson Oil Co Inc	7	dsl	360	Brewster N-4	460	5,500
	8	dsl	360	Brewster N-R	400	6,700
Slawson Drlg Co Inc	1	dsl	360	Ideco H-35	360	5,500
Strata Drlg Co	1	dsl	500	M-CSCO U-15	520	7,500
Warrior Drlg Inc	1	dsl		Emsco	400	5,000
NORTON						
Big Springs Drlg Inc	1	dsl	360	Bethlehem S-45-13	360	5,000
PAWNEE						
Husky Drlg Co Inc	1	dsl	270	M-CSCO U-15	270	6,000
Sterling Drlg Co	5	dsl	350	Emsco GB-350	600	7,000
	8	dsl	350	Gardner Denver 2000	350	2,800/3½"
PHILLIPS						
Abercrombie Drlg Inc	10	dsl	365	Franks Tri Mtd	220	4,500
	8	dsl	365	Bethlehem S-50	365	5,500
Banner Drlg Co	4	dsl	400	Apache 250-40	375	5,000
PRATT						
H-30 Drlg Inc	3	dsl	375	Ideco H-40	375	8,000
Murfin Drlg Co	19	dsl	525	Wilson Super Mogul 42	525	6,500
Red Tiger Drlg Co	6	dsl	700	Ideco H-35 Drawworks	700	5,500
RAWLINS						
Murfin Co	7	dsl	525	National T-32	300	5,000
RENO						
H-30 Drlg Inc	7	dsl	375	Ideco H-30	312	5,500

KANSAS (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
RICE						
Red Tiger Drlg Co	3	dsl	700	Ideco H-35 Drawworks	700	5,500
Sterling Drlg Co	1	dsl	350	M-CSCO U-34	285	4,600
ROOKS						
Murfin Drlg Co	21	dsl	375	Ideco H-35	475	6,500
Red Tiger Drlg Co	2	dsl	700	Emsco GA-250 Drawworks	700	5,000
RUSH						
Dunne-Gardner Petr Inc	1	dsl	350	Emsco 250	350	5,000
Rockhold Engr inc	3	gas		Cardwell RL	150	
RUSSELL						
Rains & Williamson Oil Co Inc	4	dsl	360	Unit U-34	400	5,500
Red Tiger Drlg Co	5	dsl	700	Unit U-15	700	6,000
	7	dsl	700	Emsco GA-250-T	700	5,000
SCOTT						
Rockhold Engr Inc	7	gas		Walker-Neer	200	
SEDGWICK						
Dunne-Gardner Petr Inc	2	dsl	400	Ideco H-35	400	7,000
SEWARD						
Damac Drlg Inc	5	dsl	350	Ideco DIR H-35	350	6,000
Lohmann-Johnson Drlg Co Inc	3	dsl	300	National 50	450	5,500
SHERIDAN						
Big Spring Drlg Inc	2	dsl	360	National T-32	360	5,500
STAFFORD						
Allen Drlg Co	1	dsl	476	National T-32	476	6,000
Slawson Drlg Co Inc	2	dsl	360	Ideco H-525	480	7,500
STANTON						
DNB Drlg Inc	1	dsl	450	OILWELL 52-T	450	6,500
STEVENS						
Earl F Wakefield Inc	1	dsl	440	M-CSCO U-34	440	5,000
SUMNER						
DNB Drlg Inc	3	dsl	450	National T-20	350	5,000
Dunne-Gardner Petr Inc	3	dsl	400	Challenger	400	6,000
THOMAS						
Abercrombie Drlg Inc	9	dsl	365	Bethlehem Breeze	365	5,500
Rains & Williamson Oil Co Inc	1	dsl	360	Bethlehem S-45-8	400	5,500
TREGO						
H-30 Drlg Inc	2	dsl	280	Ideco H-40	312	8,000
Murfin Drlg Co	15	dsl	300	National T-20	300	5,000

KENTUCKY

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
CUMBERLAND						
Miller Drlg Co Inc	8	dsl	400	Ingersoll-Rand	400	3,000
GARRARD						
Crescent Drlg Co	1	dsl	400	Bethlehem S-45-E	400	7,000
HENDERSON						
Crescent Drlg Co	4	dsl	400	Bethlehem S-45	400	4,000
NRG Drlg Co	1	dsl	335	National T-12	185	4,500
HOPKINS						
Crescent Drlg Co	8	dsl	400	Bethlehem S-45	400	5,000
Weal Drlg Co Inc	1	dsl	325	National T-12	335	4,000
	2	dsl	335	Cardwell S	335	4,000
JOHNSON						
Arden Drlg Co	2	dsl	800	Continental Emsco WS-1	800	12,000
OHIO						
J-V Drlg Co Inc	8	dsl	145	Speedstar SS-15-S	145	2,000/2⅞"
WEBSTER						
Kendall Drlg Co Inc	1	dsl	300	National T-12	300	3,500

LOUISIANA

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
UNDESIGNATED						
	114	dsl-elec	3300	M-CSCO U-1220-EBD	3300	30,000
Glasscock Drlg	61	dsl	1400	National 60-B	1250	13,500
	65	dsl	2200	National 110	1700	16,000
	63	dsl	2200	National 110	1700	16,000
Hardin Well Serv Inc	29	dsl	316	Ideco H-35	316	7,500
Harris Well Serv Inc	17	dsl	316	Ideco H-35	316	7,500
	18	dsl	316	Ideco H-35	316	7,500
	19	dsl	316	Ideco H-35	316	7,500
	21	dsl	316	Ideco H-35	316	7,500
	22	dsl	316	Ideco H-35	316	7,500
	23	dsl	316	Ideco H-37	480	8,000
	24	dsl	316	Ideco H-35	316	7,500
	25	dsl	632	Ideco H-44	632	10,000
	27	dsl	316	Ideco H-35	316	7,500
	28	dsl	316	Ideco H-35	316	7,500
	30	dsl	2000	Ideco 1200	1400	13,500
	31	dsl	316	Cooper LTD-350	316	7,500
	32	dsl	316	Ideco H-35	316	7,500

LOUISIANA (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
UNDESIGNATED (Contd)						
Inland Well Serv Inc	6	dsl	800	Gardner Denver 700	700	12,000
Justiss-Mears Oil Co Inc	10	dsl	500	Brewster N-45	600	10,000
ACADIA						
Delta Drlg Co	31	dsl	2300	Emsco C-1	1560	20,000
Glasscock Drlg	68	dsl	2700	National 1320	2700	20,000
Great Southern Oil & Gas Inc	42	dsl	665	Ideco	636	10,000
Grey Wolf Drlg Co	1	dsl	1170	Emsco C-1	1170	16,000
	3	dsl-elec	3000	Emsco ECB	2000	25,000
MGF Drlg Co	44	dsl	2000	M-CSCO U-914	2324	17,000
	44	dsl	2000	M-CSCO U-914	1500	17,000
Penrod Drlg Co	27	dsl	3425	Emsco C-2	2200	25,000
Pernie Bailey Drlg Co	5	dsl	1500	National 55	1100	12,000
	7	dsl	1200	J-750	1200	11,000
The Power Rig Drlg Co Inc	12	dsl	3200	Emsco A-1500-M	2200	30,000
	20	dsl	1350	Emsco C-1	1350	18,000
Wilson Bros Drlg Co	9	dsl	2600	National 110	2700	20,000
ALLEN						
Circle Bar Drlg Co	1	dsl	2000	Ideco Super 7-11	2100	17,000
Nicklos Drlg Co	25	dsl	2000	Emsco A-1500	2119	20,000
AVOYELLES						
D & D Drlg Co	3	dsl	325	Brewster N-45	350	8,000
Energy Drlg Co Inc	H-35-S	dsl	400	Ideco H-35-S	540	9,000
Justiss-Mears Oil Co Inc	17	dsl	350	Beth S-45-E	35[illegible]	7,500
O'Neal Drlg Co	15	dsl-elec	2000	Gardner Denver 800	15[illegible]	18,000
BATON ROUGE						
Penrod Drlg Co	2	dsl	2600	Emsco C-2	[illegible]425	25,000
	29	dsl	3425	National 1320-M	2200	25,000
BEAUREGARD						
Loffland Bros Co	103	dsl-elec	3300	M-CSCO U-122[illegible]-EBD	3300	30,000
BIENVILLE						
Justiss Mears Oil Co Inc	15	dsl	450	Bethlehem 45-E	300	6,500
Mosley Well Serv Inc	7	dsl	1210	Cabot 1287	475	10,000/4"
Noble Drlg Corp	E-553	dsl	1400	Emsco A-550	1000	12,000
Sawyer Drlg & Serv Inc	9	dsl	800	Brewster N-45-M	800	10,000
	12	dsl	900	Wilson Giant	900	12,000
	1	dsl	700	Brewster N-7	700	11,000
BOSSIER						
Butler-Johnson Inc	10	dsl	1500	Gardner Denver M-800	1500	14,000
N & C Drlg Corp	2	dsl	2000	OIME SL-1000	1200	15,000
Paramount Drlg Co Inc	9	dsl	1600	Emsco EDA	1600	15,000
CADDO						
Lanford Drlg Co Inc	1	dsl	150	Mayhew	150	1,000
Sawyer Drlg & Serv Inc	11	dsl	600	Wilson Giant	400	9,000
CALCASIEU						
Cliffs Drlg Co	18	dsl	1300	National 110	1300	20,000
Glasscock Drlg	64	dsl	2200	National 110	1700	16,000
	70	dsl	1600	National 80-B	1600	14,000
Great Southern Oil & Gas Inc	37	dsl	1000	Ideco	636	10,000
Grey Wolf Drlg Co	4	dsl	1500	Emsco GB-800	800	12,500
The Power Rig Drlg Co Inc	9	dsl	1850	Emsco A-800	1800	14,000
Woolf & Magee Inc	4	dsl	850	Bethlehem S-45-E	475	9,500/3½"
CALDWELL						
Butler-Johnson Inc	6	dsl	2000	Brewster N-85	1900	15,000
CAMERON						
Comet Drlg Co	12	dsl	1600	Cabot 1200	1200	13,500
Culver Drlg Co	11	dsl	2000	Gardner Denver 1100	1650	16,000
Delta Drlg Co	16	dsl	2300	National 130	2250	25,000
	65	dsl	2300	Emsco C-1	2331	18,000
Goldrus Drlg Co	15	dsl	1740	Bethlehem M-810	1560	16,000
	4	dsl	1200	Brewster N-75	1040	1,000
	9	dsl	1750	Bethlehem M-810	1560	16,000
Resource Drlg Inc	12	dsl	3105	National 1625	3740	30,000
	3	dsl	3105	National 1320	3740	25,000
	8	dsl	2330	National 110	2740	18,000
	9	dsl	2330	National 110	2740	18,000
The Power Rig Drlg Co Inc	16	dsl	2350	Brewster N-12-A	2800	20,000
Welsh Drlg & Serv Inc	15	dsl-elec	2700	M-CSCO 914-EU	3000	16,000
	17	dsl	2600	National 110-M	2550	16,000
	12	dsl	1300	National 100	1200	14,500
Woolf & Magee Inc	6	dsl	850	Bethlehem S-45-E	475	9,500/3½"
CLAIBORNE						
Butler-Johnson Inc	5	dsl	1800	Brewster N-95	1800	20,000
Lagersen Drlg Co	2	dsl	1700	M-CSCO GB-800	1500	15,000

Reduce costs with Emtec's sure-grip drilling centralizer.

Emtec's Sure-Grip Drilling Centralizer eliminates traditional stabilizer problems, providing you with maximum reliability and simplicity-of-operation while reducing costs. The field proven, advanced design of the Sure-Grip Centralizer eliminates rotary-shouldered connections—removing the possibility of washouts and other connection failures associated with conventional stabilizers.

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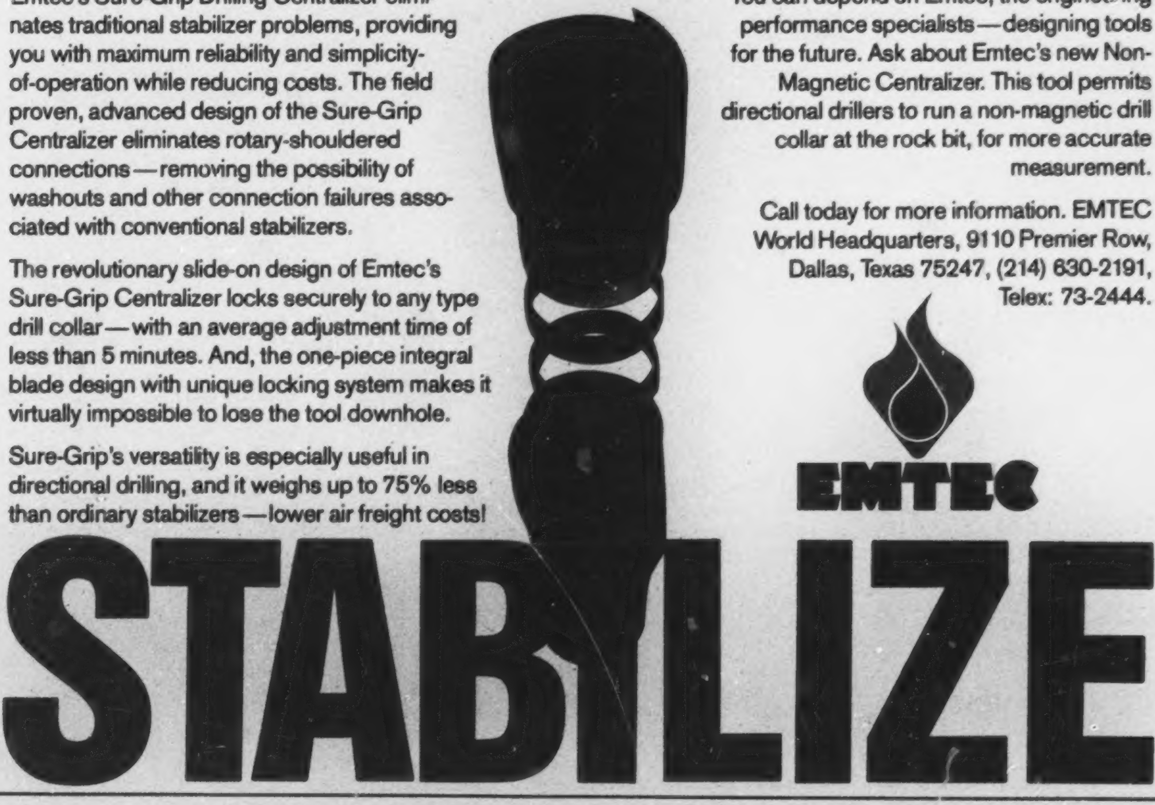

Circle 305 on Reader Service Card

LOUISIANA (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
CLAIBORNE (Contd)						
Lama Drlg Co Inc	10	dsl	600	10 Wilson Mogul	600	8,000
Noble Drlg Corp	N-59	dsl	1400	National 55	700	12,000
	N-81	dsl	1300	National 80	1000	15,000
Par-Co Drlg Inc	1	dsl	300	Ideco H-30	300	6,000
Paramount Drlg Co Inc	3	dsl	900	Bethlehem S-45	550	10,000/3½"
Sawyer Drlg & Serv Inc	8	gas	1100	Brewster N-7	1100	11,500
Wheless Drlg Co	3	dsl	1800	Emsco C-1-3	1800	18,000
Wilson Bros Drlg Co	10	dsl	2200	National 110	2100	20,000
CONCORDIA						
D & D Drlg Co	1	dsl	325	Brewster N-4-A	350	8,000
Energy Drlg Co Inc	2	dsl		Ideco H-3-TS	500	9,500
New & Hughes Drlg Co Inc	5	dsl	450	Spencer Harris 5000	500	7,000
	3	dsl	450	Spencer Harris 6000	550	7,000
Penrod Drlg Co	108	dsl	1000	National 80-B	1760	15,000
Rebel Drlg Co	1	dsl	300	Brewster N-4	300	6,500
DE SOTO						
Butler-Johnson Inc	7	dsl	1200	National 55	1200	12,500
	9	dsl	1200	Gardner Denver 700	1200	12,000
Gibson Drlg Co	3	dsl	820	Wilson Mogul 42	666	6,500
Schlensker Drlg Corp	5	dsl	950	Unit U-15	950	10,000
The H & S Drlg Co	1	dsl	1700	Brewster N-95	2145	14,000
EAST BATON ROUGE						
Cliffs Drlg Co	24	dsl	1300	National 1320	1300	25,000
Comet Drlg Co	14	dsl	2600	Gardner Denver	3000	22,000
Glasscock Drlg	66	dsl	2700	National 1320	2700	20,000
Goldrus Drlg Co	3	dsl-elec	1700	OILWELL E-2000	3400	20,000
	5	dsl-elec	3400	OILWELL E-2000	1700	20,000
	14	dsl	1200	Brewster N-75	1176	13,000
	22	dsl	1250	Cabot 1000	872	13,500
Helmerich & Payne Intl Drlg Co	71	dsl	3300	National 1320-M	3300	26,000
	87	dsl-elec-		National 1625-M	4850	30,000
Merit Drlg Co	1	dsl	2800	OILWELL 2000-E	2000	25,000
Parker Drlg Co	175	dsl	3000	OIME Hercules 3000-E	3000	30,000
Resource Drlg Inc	1	dsl	3105	National 1320	3740	25,000
Tesoro Drlg Corp	3	dsl	2600	National 1320-M	2742	25,000
EAST FELICIANA						
Pernie Bailey Drlg Co	2	dsl	2000	80-B	1950	14,000
Wilson Bros Drlg Co	8	dsl	1750	National 110	1750	16,000

LOUISIANA (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
EVANGELINE						
MGF Drlg Co	42	dsl	2000	OILWELL 96	1542	14,500
	42	dsl	1500	OILWELL 96	1500	16,000
FELICIANA						
Cliffs Drlg Co	16	dsl	1300	National 1320	1300	25,000
FRANKLIN						
Butler-Johnson Inc	8	dsl	2300	Gardner Denver 1500	2200	20,000
IBERIA						
Delta Drlg Co	82	dsl-scr	3200	Emsco C-11	3648	25,000
Inland Well Serv Inc	15	dsl	2400	Brewster N-95	1600	18,000
	7	dsl	800	Gardner Denver	700	12,000
Noble Drlg Corp	PB-1	dsl	2450	Gardner Denver 1500	2000	20,000
The Power Rig Drlg Co Inc	11	dsl	2700	Emsco A-1500	2000	25,000
Wilson Bros Drlg Co	11	dsl	2400	National 110	2700	20,000
IBERVILLE						
American Well Serv Drlg Inc	11	dsl	1600	Brewster HI-4610A-38	575	8,000
Atlantic Pacific Marine Corp	4	dsl	2472	Emsco A-1500	2472	25,000
Comet Drlg Co	4	dsl	1250	Brewster N-75	750	12,000
Great Southern Oil & Gas Co	5	dsl	500	Wilson	318	7,000
MGF Drlg Co	46	dsl	2000	Ideco Super 7-11	2346	17,000
	46	dsl	1800	Ideco S-7-11	1500	17,000
Pearnie Bailey Drlg Co	1	dsl	1500	Brewster N-75	850	12,000
Wilson Bros Drlg Co	7	dsl	1400	National 80-B	1400	12,500
JACKSON						
Circle Bar Drlg Co	4	dsl	1300	OILWELL 96	1500	15,000
Paramount Drlg Co Inc	10	dsl	1350	National 75-CB	1350	14,000
JEFFERSON DAVIS						
Atlantic Pacific Marine Corp	3	dsl	1250	National 110	1300	15,000
Comet Drlg Co	10	dsl	1600	Cabot 900	900	10,500
Culver Drlg Co	10	dsl	1850	National 110	1650	16,000
Goldrus Drlg Co	16	dsl	1250	Bethlehem MA-810	1176	13,000
MGF Drlg Co	47	dsl	2250	Ideco Super 7-11	2346	17,000
	47	dsl	1800	Ideco S-7-11	1500	17,000

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Circle 306 on Reader Service Card

LOUISIANA (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
JEFFERSON DAVIS (Contd)						
Pernie Bailey Drlg Co	6	dsl	3000	National 110-M	3000	18,000
The Power Rig Drlg Co Inc	7	dsl	1850	Emsco A-800	1800	12,500
Wilson Bros Drlg Co	2	dsl	1900	National 110	1900	20,000
Woolf & Magee Inc	11	dsl	850	Bethlehem S-45	475	9,500/3½"
LA SALLE						
Justiss-Mears Oil Co Inc	37	dsl	200	JFJ-500	225	5,000
LAFAYETTE						
American Well Serv & Drlg Inc	14	dsl	1600	Brewster H1-46-10-A	575	10,500
Comet Drlg Co	6	dsl	1600	Ideco Super 7-11	1600	16,500
Delta Drlg Co	97	dsl	2000	Emsco J-1100	1560	16,000
	35	elec-scr	2550	Emsco C-1 Type II	2592	20,000
Dual Drlg Co	11	dsl	2400	OILWELL 860	1400	19,000
Goldrus Drlg Co	8	dsl-elec	1750	OILWELL 840-E	1700	18,000
Grey Wolf Drlg Co	6	dsl-elec	3000	Emsco C-II	2000	25,000
	8	dsl-elec	3000	Emsco C-Z II	2000	25,000
The Power Rig Drlg Co Inc	18	dsl	3200	Emsco C-2	2000	25,000
LAFOURCHE						
Cliffs Drlg Co	33	dsl	1000	National 80-B	1000	14,500
Glasscock Drlg	62	dsl	2000	National 110	1700	16,000
Goldrus Drlg Co	11	dsl	1500	Brewster N-12-A	2000	16,000
	7	dsl	1750	Brewster N-95	1560	16,000
Grey Wolf Drlg Co	7	dsl-elec	3000	Emsco C-11	2000	25,000
Murco Drlg Corp	26	dsl	2800	OILWELL N-2000-B	3000	30,000
Parker Drlg Co	2	dsl	1200	OIME SL-1000-P	1200	14,000
The Power Rig Drlg Co Inc	17	dsl	2000	Ideco 7-11	2000	16,000
	8	dsl	2000	Ideco 7-11	2000	15,000
LINCOLN						
Chesley Pruet Co	15	dsl	4800	Emsco C-3	4800	30,000
Murco Drlg Corp	18	dsl	2800	M-CSCO U-1220	2400	25,000
Noble Drlg Corp	N-812	dsl	1420	National 80-B	1420	15,000
Pool Well Serv Co	229	dsl	379	Cabot 750	750	5,500
Remco Drlg Co	1	dsl	900	Cabot 2042	475	10,000
Sawyer Drlg & Serv Co	10	gas	1200	Wheland 1000	1200	13,000
	7	gas	900	Ideco 750	900	12,500
Wheless Drlg Co	2	dsl	1200	Brewster N-7	1200	10,500
LIVINGSTON						
Dual Drlg Co	22	dsl	3200	National 1320-M	2000	22,000
Helmerich & Payne Intl Drlg Co	74	dsl	3740	OILWELL M-3000	3740	30,000
	79	scr	2200	National 110	1500	20,000
Loffland Bros Co	145	dsl	2955	M-CSCO U-1220	2955	20,000
	116	dsl-elec	3200	M-CSCO U-1220-EBD	3000	32,000
Penrod Drlg Co	9	dsl	2600	National 1320-M	3425	25,000
Resource Drlg Inc	10	dsl	2330	National 110	2740	18,000
	11	dsl	3105	National 1625	3740	30,000
The Power Rig Drlg Co Inc	14	dsl	2700	Emsco A-1500	2805	25,000
MOREHOUSE						
TR Drlg Co Inc	3	dsl	300	Bethlehem S-45-A	200	3,500
NATCHITOCHES						
Justiss-Mears Oil Co Inc	35	dsl	1250	Emsco J-1400	1200	18,000
	7	dsl	1800	Emsco J-1400	2900	20,000
	9	dsl	800	Emsco GC-500	1200	12,500
ORLEANS						
Inland Well Serv Inc	14	dsl	2400	Brewster N-95	1600	18,000
OUACHITA						
Justiss-Mears Oil Co Inc	14	dsl	800	Emsco GB-500	900	11,000
	22	dsl	1800	National 80-B	1420	14,000
PLAQUEMINES						
Inland Well Serv Inc	11	dsl	500	National 55	1100	10,000
Sanders Workover & Drlg	1	dsl	900	Emsco A-800	1100	14,000
POINTE COUPEE						
Cliffs Drlg Co	28	dsl	1300	National 1320	1300	25,000
	30	dsl	1300	National 1320	1300	25,000
Delta Drlg Co	25	dsl	2300	Emsco C-1	2592	18,000
	76	dsl-scr	3200	Gardner Denver 3000-RE	4600	30,000
Dual Drlg Co	9	dsl	3200	National 1320-M	2000	25,000
Eagle Prod & Drlg Serv Inc	3	dsl-elec	3300	OILWELL E-2000	2000	25,000
Eljay Drlg Corp	1	dsl-elec	2800	OILWELL E-2000	2000	25,000
	2	dsl-elec	2800	OILWELL E-2000	2000	25,000
Helmerich & Payne Intl Drlg	45	dsl-elec	3000	National 1320-UE	3000	26,000
MGF Drlg Co	401	dsl-elec	3000	National 1320	3000	25,000
Merit Drlg Co	4	dsl	2800	OILWELL 2000-E	2000	25,000
Noble Drlg Corp	25	dsl	3300	National 1625-DE	3000	30,000
Parker Drlg Co	165	dsl	3000	OIME Hercules 3000-E	3000	30,000
	174	dsl	3000	OIME Hercules 3000-E	3000	30,000
	180	dsl	3000	OIME Hercules 3000-E	3000	30,000
Penrod Drlg Co	1	dsl	3425	National 1625-M-6	2200	30,000
	17	dsl	2600	National 1320-M	3425	25,000
	28	dsl	3425	National 1320-M	2200	25,000
	4	dsl	3425	Emsco C-3	2200	30,000
Pernie Bailey Drlg Co	4	dsl	2900	National 1320-M	3000	20,000
The Power Rig Drlg Co Inc	19	dsl	3300	Emsco C-3	2000	25,000
RED RIVER						
Murco Drlg Corp	34	dsl	2200	OILWELL N-760	1350	15,000
RICHLAND						
Justiss-Mears Oil Co Inc	11	dsl	1200	Emsco GB-800	1600	14,000
RUSTON						
Pool Well Serv Co	61	dsl	450	Pool	500	5,500
SABINE						
Helmerich & Payne Intl Drlg Co	77	dsl	2100	National 110	2000	20,000
ST BERNARD						
Atlantic Pacific Marine Corp	7	dsl	1600	OILWELL E-2000	2000	25,000
	8	dsl	1600	OILWELL E-2000	2000	25,000
ST CHARLES						
Chiles Drlg Co	7	dsl	1600	National 0-610	1000	12,000
Delta Drlg Co	83	dsl	2600	Emsco C-1	2331	18,000
Dual Drlg Co	15	dsl	2600	Wilson 150-A	1650	19,000
MGF Drlg Co	41	dsl	1700	OILWELL 96	2060	14,500
	41	dsl	1600	OILWELL 96	1600	15,000
The Power Rig Drlg Co Inc	15	dsl	2350	Emsco 1013-B	2265	16,000
ST JAMES						
Mallard Well Serv Inc	14	dsl	1300	Wilson 90	800	14,500
ST LANDRY						
Cliffs Drlg Co	27	dsl	1300	National 1320		25,000
Glasscock Drlg	69	dsl	2700	National 1320	2700	20,000
Grey Wolf Drlg Co	2	dsl-elec	3000	Emsco C-11	2000	25,000
Helmerich & Payne Intl Drlg Co	37	dsl	3270	OILWELL M-2000	3270	22,000
Loffland Bros Co	167	dsl	2160	M-CSCO U-914-C	2400	20,000
	115	dsl-elec	3200	M-CSCO U-1220-EBD	3000	28,000
MGF Drlg Co	43	dsl	2250	OILWELL 96	2324	18,000
	43	dsl	1800	OILWELL 96	1200	18,000
Penrod Drlg Co	10	dsl	2600	National 1320-M	3425	25,000
Wilson Bros Drlg Co	6	dsl	2600	National 1320	2700	30,000
Woolf & Magee Inc	12	dsl	850	Ideco H-35-S	475	10,000/4"
ST MARTIN						
Atlantic Pacific Marine Corp	1	dsl	2750	OILWELL	2750	20,000
Comet Drlg Co	8	dsl	1600	Cabot 1200	1200	13,500
Inland Well Serv Inc	5	dsl	660	National 55	900	10,000
Wilson Bros Drlg Co	1	dsl	1400	National 80-B	1400	12,500
ST MARY						
Goldrus Drlg Co	2	dsl-elec	2000	OILWELL E-2000	2000	25,000
Inland Well Serv Inc	2	dsl	500	Emsco 1100	1000	10,000
Penrod Drlg Co	8	dsl	2600	National 1320-M	3425	25,000
Wilson Bros Drlg Co	5	dsl	2500	National 110-M	2200	20,000
ST TAMMANY						
Nicklos Drlg Co	79	dsl-elec				
TENSAS						
New & Hughes Drlg Co Inc	9	dsl	450	Spencer Harris 5000	550	7,000
TERREBONNE						
Cliffs Drlg Co	26	dsl	1000	National 110	1000	16,000
Parker Drlg Co	162	dsl	2200	OIME SL-1500-P	2200	20,000
Progress Drlg & Marine Inc	21	dsl	1850	M-CSCO U-914-C	1650	16,000
Sanders Workover & Drlg	2	dsl	3200	Brewster N-12-A	3000	25,000
UNDESIGNATED						
E Jay Drlg Corp	3	dsl-scr	3200	OILWELL E-3000	3000	30,000
Harris Well Serv	33	dsl	900	Ideco H-44	900	10,000
Richards Operating Co	9	dsl-elec	3400	OILWELL E-3000	3000	30,000
Santa Fe Drlg Co	120	dsl-elec	3400	Emsco C-311-E	3000	25,000
	121	dsl-elec	3400	OILWELL 2000-E	3000	25,000
	95	dsl-elec	2800	OILWELL E-2000	1500	20,000
UNION						
Justiss-Mears Oil Co Inc	16	dsl	600	Emsco GB	900	12,000
	31	gas-btne	500	Wilson Giant Roadair	650	10,000
Murco Drlg Corp	3	dsl	300	Spencer Harris 3500	400	5,000
Sawyer Drlg & Serv Inc	4	dsl	1000	Brewster N-7	1000	12,500
Underwood Oil Well Serv Inc	12	dsl	350	Brewster N-13	350	4,000/3½"
VERMILION						
Amoy Drlg & Well Serv Corp	40	dsl	2300	National 1320	2300	12,000
Atlantic Pacific Marine Corp	5	dsl	1854	Emsco A-1500	1854	20,000
Cliffs Drlg Co	31	dsl	1300	National 110	1300	20,000
Delta Drlg Co	47	dsl	2300	National 130	2250	20,000
	85	dsl-scr	2900	Emsco C-11	3456	25,000
Goldrus Drlg Co	21	dsl	1200	Cabot 1000	872	13,500/4"
Grey Wolf Drlg Co	5	dsl-elec	3000	Emsco EDA	2000	25,000
Noble Drlg Corp	OW-31	dsl-elec	2600	OILWELL E-3000	3000	25,000
Penrod Drlg Co	18	dsl	3000	National 1625	2200	30,000
Pernie Bailey Drlg Co	3	dsl	2000	Brewster N-12		18,000

LOUISIANA (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
VERMILION (Contd)						
The Power Rig Drlg Co Inc	21	dsl	2800	Emsco A-1500	2000	25,000
Wilson Bros Drlg Co	12	dsl	1850	National 110	1850	16,000
	3	dsl	2700	National 1320	2200	30,000
	4	dsl	2600	National 110	2700	20,000
WASHINGTON						
Delta Drlg Co	93	dsl-scr	2000	Emsco D-3	2592	16,000
Dual Drlg Co	21	dsl	2600	Emsco C-1	1500	22,000
Tesoro Drlg Co	4	dsl	2600	National 1320-M	2742	25,000
	6	dsl	2600	National 1625-M	2742	30,000
WEBSTER						
Butler Johnson Inc	4	dsl	1200	Brewster N-75	1200	12,500
	1	dsl	1900	Brewster N-85	1900	15,000
Lagersen Drlg Co	3	dsl	2650	OILWELL 96	2400	20,000
Murco Drlg Corp	6	dsl	2200	Brewster N-95	1000	14,000
Nelson Drlg & Well Serv Inc	1	dsl	600	Spencer Harris 7000	500	9,000/4"
Sawyer Drlg & Serv Inc	6	gas	1200	Brewster N-75	1200	13,000
Transcontinental Drlg Co Inc	22	dsl	600	Brewster N-7	600	11,000
WEST BATON ROUGE						
Helmerich & Payne Intl Drlg Co	73	dsl-elec	3270	OILWELL 3000-M	3270	30,000
Penrod Drlg Co	11	dsl	2600	National 1320-M	3425	25,000
WEST FELICIANA						
Amoy Drlg & Well Serv Corp	55	dsl	1500	National 110	1500	16,000
Cliffs Drlg Co	32	dsl	1300	National 110	1300	20,000
Delta Drlg Co	96	dsl-elec	2600	Emsco C-1 Type II	3456	2,000
WINN						
Murco Drlg Corp	46	dsl	2800	OILWELL E-2000	2000	30,000

MICHIGAN

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
CALHOUN						
Don Scott Drlg Co	5	dsl	550	Ideco H-1000	900	8,000
Nicor Drlg Co	23	dsl	320	National T-12	290	5,000
CLARE						
T D Provins Drlg Co Inc	5	dsl	600	Ideco 1000	1000	10,000
EATON						
James Bigard Drlg Co	1	dsl	535	Ideco H-35	318	5,500
GRAND TRAVERSE						
Cactus Drlg Corp	28	dsl	1070	National 50-A	800	10,000
L & G Drlg Co	2	dsl	500	Wilson 65	600	8,000
Nicor Drlg Co	21	dsl	720	Ideco H-35	510	7,500
	22	dsl	510	Ideco H-35	720	7,500
Ratliff Drlg Co	12	dsl	700	Gardner Denver 500-M	700	12,000
GRATIOT						
T D Provins Drlg Co Inc	1	dsl	500	Cooper 5656	350	4,000
INGHAM						
James Bigard Drlg Co	5	dsl	600	Wilson 65	535	7,000
ISABELLA						
James Bigard Drlg Co	3	dsl	600	Franks Cabot 550	550	7,500
KALKASKA						
Cactus Drlg Corp	12	dsl	1000	OILWELL 66	800	10,000
James Bigard Drlg Co	10	dsl	700	Ideco H-44	600	8,500
L & G Drlg Co	3	dsl	500	Emsco GB-350	600	10,000
T D Provins Drlg Co Inc	3	dsl	600	Ideco 1000	1000	10,000
	6		600	Ideco 700	700	9,000
LAPEER						
James Bigard Drlg Co	7	dsl	600	Ideco H-37	535	7,500
MANISTEE						
Cactus Drlg Co	16	dsl	1070	National 50-A	850	10,000
James Bigard Drlg Co	8	dsl	600	Ideco H-44	600	8,500
Nicor Drlg Co	24	dsl	850	Ideco H-525	850	10,000
MISSAUKEE						
James Bigard Drlg Co	9	dsl	600	Ideco H-44	600	8,500
MONTMORENCY						
Michigan Consolidated Gas Co	4	dsl	500	Ideco DIR-7015	600	7,500
OTSEGO						
T D Provins Drlg Co Inc	4	dsl	600	Cooper 550	500	8,000
PRESQUE ISLE						
Cactus Drlg Corp	17	dsl	1000	Brewster N-55	800	11,000
ROSCOMMON						
L & G Drlg Co	1	dsl	398	Ideco H-35	398	5,000
WEXFORD						
Cactus Drlg Corp	21	dsl	1000	Bethlehem M-58	800	12,000

MISSISSIPPI

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
ADAMS						
Eagle Drlg Corp	1	dsl	318	1968 Gardner Denver 3000	220	3,000

MISSISSIPPI (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
ADAMS (Contd)						
Lama Drlg Co Inc	1	dsl	600	Ideco H-4	350	9,000/4"
Rebel Drlg Co	H-30	cat	300	Ideco H-30	300	8,000
CLAIBORNE						
Goldrus Drlg Co	6	dsl-elec	3400	OILWELL E-2000	1700	20,000
CLARKE						
Marion Drlg Co Inc	4	dsl	2400	Emsco Model C-2	2400	25,000
CLAY						
Apollo Drlg & Expl Inc	5	dsl	500	National 370	550	9,000
Crescent Drlg Co	7	dsl	1200	Bethlehem Toro	1200	12,000
COPIAH						
Marion Drlg Co Inc	6	dsl	3300		3300	30,000
COVINGTON						
Delta Drlg Co	66	dsl-elec	2300	Emsco Electrohoist II	3456	18,000
Penrod Drlg Co	7	dsl	3425	National 1625-M-6	2200	30,000
FORREST						
Welsh Drlg & Serv Inc	11	dsl	1750	OILWELL 76	1605	12,500
FRANKLIN						
Helmerich & Payne Intl Drlg Co	40	dsl	1545	OILWELL 860	1545	20,000
Rebel Drlg Co	2	dsl	325	Bethlehem S-45	325	7,500
GEORGE						
Chesley Pruet Drlg Co	12	dsl	3600	Emsco C-2	3600	25,000
GREENE						
Lama Drlg Co Inc	5	dsl	1000	National 75	1000	13,500/4"
HOLMES						
New & Hughes Drlg Co Inc	6	dsl	450	Bethlehem C-50	600	11,000
JASPER						
Exeter Drlg Southern Inc	15	dsl	2550	Gardner Denver 1100	1550	18,000
New & Hughes Drlg Co Inc	80-B	dsl	1200	National 80-B	1200	15,000
Rapad Drlg Co	2	dsl	1800	Emsco GB-500	1200	13,500
JEFFERSON DAVIS						
Delta Drlg Co	56	dsl	2600	Wilson Super 250	2592	25,000
Dual Drlg Co	7	dsl	2800	National 1320-M	2000	25,000
Murco Drlg Corp	22	dsl	2400	Brewster N-95	2400	20,000
JONES						
Lama Drlg Co Inc	7	dsl	1740	National 100	1740	15,500
Rapad Drlg Co	4	dsl-elec	2000	Emsco C-1	4000	25,000
LAMAR						
Chesley Pruet Drlg Co	14	dsl	3600	Gardner Denver 1500	3600	25,000
Marion Drlg Co Inc	2	dsl	2400	Emsco C-1	2400	20,000
Penrod Drlg Co	109	dsl	2000	Brewster N-75-A	1760	
LAWRENCE						
Eagle Prod & Drlg Serv Inc	2	dsl-elec	3300	OILWELL E-2000	2000	25,000
Exeter Drlg Southern Inc	26	dsl	2500	95 Brewster	2500	17,500
Marion Drlg Co Inc	1	dsl	1800	Emsco Model M-810	1800	16,000
Transcontinental Drlg Co Inc	8	dsl	1700	National 110	2325	17,500
MARION						
Exeter Drlg Southern Inc	16	dsl	2600	Gardner Denver 1500	2600	25,000
	27	dsl	2800	Gardner Denver 1500	2800	25,000
Helmerich & Payne Intl Drlg Co	75	dsl	3740	National 1625-M	3740	30,000
Loma Drlg Co Inc	9	dsl	1000	Wilson Titan	1000	12,000/4"
Marion Drlg Co Inc	5	dsl	2400	OILWELL M-2000	2400	25,000
Penrod Drlg Co	14	dsl	3075	Brewster N-12-A	1840	20,000
	24	dsl	2600	Brewster N-12-A	1950	25,000
Rapad Drlg Co	3	dsl-elec	4000	Gardner Denver 1500-E	2000	25,000
Tesoro Drlg Corp	1	dsl	2300	National 130-M	2742	20,000
	2	dsl	2300	National 1320-M	2742	20,000
Transcontinental Drlg Co Inc	4	dsl	2150	OILWELL 96	2550	21,000
MONROE						
Warrior Drlg & Engr	2	dsl	360	Unit 15	300	4,000
RANKIN						
Helmerich & Payne Intl Drlg Co	86	dsl-elec		National 1625-DE	3850	30,000
	72	dsl	3270	OILWELL 3000-M	3270	30,000
Loffland Bros Co	330	dsl	2400	M-CSCO U-1220	2775	22,000
Penrod Drlg Co	21	dsl	2600	National 1320-M	1950	15,000
	6	dsl	3425	National 1625-M-6	2200	30,000
SIMPSON						
Goldrus Drlg Co	1	dsl-elec	2000	OILWELL E-3000	3000	30,000
Transcontinental Drlg Co Inc	2	dsl	1700	OILWELL 96	1500	16,000
WALTHALL						
Noble Drlg Corp	E-1102	dsl	2800	Emsco A-1100	1800	18,000

MISSISSIPPI (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
WALTHALL						
Noble Drlg Corp	E-1102	dsl	2200	Emsco A-1100	1800	18,000
WAYNE						
Justiss-Mears Oil Co Inc	23	dsl	1800	Emsco J-1100	2400	20,000
Loffland Bros Co	328	dsl	2160	National 130	2400	22,500
New & Hughes Drlg Co Inc	7	dsl	500	M-CSCO U-34	525	8,000
	14	dsl	1500	Emsco C-2	2000	22,000
WILKINSON						
Energy Drlg Co Inc	1	dsl	350	Bethlehem S-45-A	350	7,000
Wilcox Drillers Inc	4	dsl	350	Ideco H-30	350	8,500

MONTANA

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
UNDESIGNATED						
Bird Oil Equipment Ltd	4	dsl		Emsco GB-350	600	8,500
BEAVERHEAD						
Viersen & Cochran Drlg Co	13	dsl	1850	National 80-B	1500	18,000
BLAINE						
K 9 Drlg Co	1	dsl	278	Cardwell K-150 Double Drum	185	4,500
	2	dsl	278	Cardwell AH-91 Single Drum	185	3½"
CHOUTEAU						
Comanche Drlg Co	5	dsl	430	Ideco H-30	400	5,000
DAWSON						
Nicor Drlg Co	26	dsl	600	National 50-A	425	11,500
Ratliff Drlg Co	5	dsl	1100	National 75-CA	1100	15,000
FALLON						
Drilcon Inc	3	dsl	1176	National 50-A	784	10,000
Noble Drlg Corp	N-57	dsl	900	National 55	700	11,500
FERGUS						
Molen Drlg Co Inc	1	dsl	350	Emsco GB-250-T	350	5,500
GLACIER						
General Well Serv Inc	21	dsl	450	Cooper LTD-550	400	6,000/3½"
	6	dsl	450	Cardwell KB-210-A	400	5,000/3½"
Molen Drlg Co Inc	2	dsl	800	Skytop/Brewster N-46	800	10,000
	3	dsl	700	National 50-A	700	9,000
	4	dsl	1350	Skytop/Brewster N-75A	1350	14,000
GRANITE						
Enopco	1	dsl	2430	National 110-M	2430	20,000
HILL						
Elenburg Explor Inc	8	dsl	420	Walker-Neer CC-2000	180	2,500
LAKE						
Comanche Drlg Co	1	dsl	430	Ideco H-30	400	5,000
LIBERTY						
Comanche Drlg Co	2	dsl	430	Ideco H-30	400	5,000
Elenburg Expl Inc	10	dsl	350	Harold Lee Engineer	350	5"
MC CONE						
Bomac Drlg	25	dsl	1650	Bethlehem 810		
Noble Drlg Corp	N-89	dsl	1200	National 80-B	1000	13,000
MUSSELSHELL						
Soape Drlg Co	1	dsl	950	National 45	950	7,500
True Drlg Co	4	gas-LPG	350	Emsco GA-250-T	500	6,500
PHILLIPS						
Elenburg Explor Inc	2	dsl	420	Walker-Neer CC-2000	180	2,500
PONDERA						
Aspen Drlg Co	1	dsl	400	Eubanks 3500	475	3,500
RICHLAND						
Bomac Drlg	42	dsl	930	National 50-A	930	10,500
Brinkerhoff-Signal Inc	1	dsl	1100	Gardner-Denver 800	1100	13,000
	11	dsl	1500	National 80-B	1500	15,000
	74	dsl	1500	Gardner-Denver GD-800	1500	15,000
Drilcon Inc	1	dsl	1125	Bethlehem 450	1125	11,000
Helmerich & Payne Intl Drlg Co	15	dsl	1200	OILWELL 76	1200	13,500
Kenai Drlg Rocky Mountain Inc	27	dsl	1200	National CA-751	1200	14,000
Parker Drlg Co	92	dsl	1200	National 100-M	1200	15,000
Pruet-Ram-Company	2	dsl	3000	Emsco C-1	3000	20,000
	3	dsl	1800	Emsco D-2	1200	15,000
Tom Brown Inc	19	dsl	750	National CA-50	750	10,000
Transcontinental Drlg Co Inc	46	dsl	2000	National 80-B	1836	15,000
ROOSEVELT						
Atco Drlg Inc	58	dsl-elec	1800	National 80-UE	1800	15,000
Bomac Drlg	37	dsl	750	National 50-A	750	10,500
	50	dsl	1800	National 80-B	2000	16,000
Century Drlg Co	1	dsl	500	Brewster N-4-A	425	6,500
Noble Drlg Corp	E-552	dsl	1200	Emsco A-550	910	13,000
	N-810	dsl	1600	National 80-B	1000	15,000

MONTANA (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
ROOSEVELT (Contd)						
Pruet-Ram-Company	4	dsl	2000	Emsco D-3	2000	18,000
	5	dsl	1800	Emsco D-2	1200	14,000
True Drlg Co	22	dsl	1200	National 55	1200	13,000
SHERIDAN						
Bomac Drlg	39	dsl	1300	Brewster N-75	1155	12,000
Cardinal Drlg Co	14	dsl	375	Emsco GB-350	375	8,500
Drilcon Inc	4	dsl	1860	National 110	1860	15,000
Helmerich & Payne Intl Drlg Co	38	dsl	1350	National 80	1350	16,000
Transcontinental Drlg Co Inc	31	dsl	1600	Wilson 90-B	1600	15,000
	50	dsl	2000	Gardner-Denver GD-800	1400	15,000
Westburne Drlg Inc	61	dsl	1000	National 55	1320	12,500
STILLWATER						
Simmons Drlg Inc	31	dsl	440	Spencer Harris 6000	440	6,000
TETON						
Simmons Drlg Inc	32	dsl	440	Spencer Harris 3500	440	5,000/3½"
	39	dsl	440	M-CSCO U-34	440	7,000
	39	dsl	440	M-CSCO U-15	440	7,000
TOOLE						
Aikins Drlg	2	dsl	200	Bycyrus	200	3,000/2⅞"
Century Drlg Co	4	dsl	480	National T-12	600	3,500
Comanche Drlg Co	4	dsl	270	Mayhew 2500-A	220	2,500
Elenburg Explor Inc	5	dsl	420	Walker-Neer CC-2000	180	2,500
WIBAUX						
Bomac Drlg	38	dsl	900	Gardner-Denver 700-M	900	11,500
YELLOWSTONE						
Century Drlg Co	3	dsl	500	National T-20	425	6,500
L & R Drlg Co	2	dsl	250	Mayhew 2000	165	2,000/3½"

NEBRASKA

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
CHEYENNE						
Exeter Drlg Northern Inc	5	dsl	300	M-CSCO U-34-D	300	6,000
DAWES						
Elenburg Explor Inc	3	dsl	420	Walker-Neer CC-2000	180	2,500
DUNDY						
Murfin Drlg Co	3	dsl	300	National T-25	300	5,000
HITCHCOCK						
Murfin Drlg Co	2	dsl	300	National T-32	300	5,000
Stoeppelwerth Drlg Inc	1	dsl	375	National T-32	375	5,500
KIMBALL						
Banner Drlg Co	3	dsl	500	National T-45	800	9,500
Exeter Drlg Northern Inc	14	dsl	375	Bethlehem C-50	460	7,500
Toltek Drlg Co	4	dsl	440	Unit U-34	440	7,000
RED WILLOW						
Murfin Drlg Co	20	dsl	525	National 370	600	7,500

NEVADA

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
CHURCHILL						
Montgomery Drlg Co	2	dsl-elec	2000	OILWELL 940-E	3000	18,000/5"
ELKO						
Montgomery Drlg Co	4	dsl	2000	OILWELL 96	1500	18,000/5"
EUREKA						
Brinkerhoff-Signal Inc	2	dsl	875	M-CSCO U-36-A	600	9,000
NYE						
Cardinal Drlg Co	2	dsl	864	Emsco 350	760	8,000/8,500
WHITE PINE						
Montgomery Drlg Co	7	dsl	1200	National 75	700	11,000/5"

NEW MEXICO

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
UNDESIGNATED						
Challenger Drlg	14-S	dsl	5500	National 125	1100	4,000/13"
Chico Drlg Co Inc	3	dsl	550	Emsco D-2	1500	14,000
BERNALILLO						
Earl & Son Drlg Inc	1	top drive	1500	Ingersoll-Rand	3800	1,500
CHAVES						
Artesia Fishing Tool Co	1	dsl	400	Mayhew 3000	200	4,000/3½"
Cactus Drlg Corp	8	dsl	850	Brewster N-7	1170	10,000
Kenai Drlg of Texas Inc	14	dsl	700	Emsco GC-500	800	11,000
W E K Drlg Co Inc	1	dsl	500	M-CSCO U-34	360	7,500
	2	dsl	600	Ideco H-35	440	10,500
Warton Drlg Co	8		900	Cabot/Franks M-750	635	7,000
EDDY						
Ard Drlg Co	2	dsl	1986	M-CSCO U-20	1800	18,000
	3	dsl	1400	M-CSCO U-40	1200	15,000
	7	dsl	1200	M-CSCO U-40	1200	14,000

NEW MEXICO (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
EDDY (Contd)						
Cactus Drlg Corp	15	dsl	1200	Bethlehem 650	1200	15,000
Hondo Drlg Co	10	dsl	1250	Brewster N-75-A	1250	15,000
	3	dsl	1200	Emsco	800	13,500
	5	dsl	1200	National 55-C	800	13,500
Kenai Drlg of New Mexico Inc	23	dsl	1800	Emsco J-1250	1800	15,000
Kenai Drlg of Texas Inc	15	dsl	600	Emsco G-500	800	11,000/4"
Kenai Drlg of New Mexico Inc	22	dsl	1000	Emsco J-1100	1400	15,000
Kenai Drlg of Texas Inc	15	dsl	580	Emsco GC-500	800	11,000
Kenai Drlg West Coast Inc	23	dsl	1000	Emsco J-1250	1400	15,000
L & M Drlg Inc	1	dsl	750	3000	440	7,500
Landis Drlg Co	4	dsl	800	Brewster N-45	700	10,000
Loffland Bros Co	331	dsl	2160	M-CSCO U-1220	2400	18,000
MGF Drlg Co-Midland	23	dsl	1150	OILWELL 76	1150	13,500
	26	dsl	1725	Brewster N-95	1725	19,000
McVay Drlg Co	4	dsl	850	National 75	850	12,000
	8	gas	1200	National 80-B	1200	15,000
Moranco	3	dsl	1100	M-CSCO 712-A	1000	15,000
	7	dsl	1100	Brewster N-75	1000	15,000
Parker Drlg Co	34	gas	1200	National 75	1200	16,000
Santa Fe Drlg Co (Western)	2	gas	1850	Bethlehem B-1013	2118	21,000
Sharp Drlg Co Inc	32	dsl	1500	Emsco 800	1482	16,500
	48	dsl	1355	Bethlehem M-58	988	13,500
	62	dsl	1600	Emsco D-3	1414	16,000
	63	dsl	2000	Emsco D-3	1836	18,000
	65	dsl	2000	Emsco D-3	1836	18,000
Sterling Drlg Co	9	dsl	1350	Brewster N-75	1100	14,000
Warton Drlg Co	1	gas	1650	Brewster N-75	1650	13,000
	2	dsl	970	National 50-A	1100	11,000
	3	dsl	3300	National 110	3300	18,000
	6	gas	1700	National 80-B	1320	16,000
GRANTS						
Morrow Drlg Co	1	dsl	1360	Cabot 1287	350	4,000
HARDING						
Baker & Taylor Drlg Co	18	dsl	470	Emsco 250	470	4,500
LEA						
Ard Drlg Co	5	dsl	1986	M-CSCO U-20	1800	15,000
	6	dsl	1200	M-CSCO U-15	1200	11,500
BBL Drlg Corp	1	dsl	500	Wilson Mogul 42	760	8,000
Cactus Drlg Co	59	dsl	502	Brewster N-4	454	6,000
	64	dsl	875	Brewster N-45	670	7,500
	65	dsl	502	Brewster N-4	454	6,000
	67	dsl	502	National T-32	454	6,500
	68	dsl	375	Ideco H-30	454	6,000
	30	dsl	2000	National 110	2976	23,000
Delta Drlg Co	60	dsl-elec	1825	Emsco D-3 Type II	2600	15,000
	3	dsl	2300	Emsco C-1 Type III	2331	18,000
Hondo Drlg Co	1	dsl	950	M-CSCO U-15	700	10,500
	4	dsl	1450	Brewster N-75	1150	13,500
	6	gas	600	M-CSCO U-15	500	9,000
	7	gas	1000	Brewster N-55	750	10,500
Kenai Drlg of Texas Inc	18	dsl	410	Ideco H-35	450	6,500/4"
Kenai Drlg of New Mexico Inc	21	dsl	1000	Unit U-20	1400	15,000
Kenai Drlg of Texas Inc	18	dsl	800	Ideco H-35	580	7,000
	19	dsl	825	Emsco GA-500	800	11,000
	19	dsl	700	Emsco GA-500	800	11,000/4"
Lanois Drlg Co	2	dsl	1000	Brewster N-75	1350	13,500
MGF Drlg Co-Midland	1	dsl	750	Bethlehem M-58	750	12,500
	22	dsl	1500	OILWELL 760	1500	15,000
	25	dsl	1725	Brewster N-95	1725	19,000
McVay Drlg Co	10	gas	1300	National 100	1300	16,000
	7	dsl	1200	National 75-CA	1200	13,000
	9	dsl	1400	National 110	1400	18,000
Moranco	1	dsl	1100	OIME 1000-SL	1000	15,000
	2	dsl	1100	Emsco GB-800	1000	15,000
	9	dsl	750	Brewster N-55	750	11,000
Parker Drlg Co	38	gas	1200	National 100-M	1800	18,000
	66	gas	2400	National 130	2400	25,000
	89	gas	2000	National 1320	2000	23,000
Santa Fe Drlg Co (Western)	12	dsl-elec	2000	Emsco A-1100-E	1800	19,000
Sharp Drlg Co Inc	36	dsl	2940	Bethlehem MC-950	2742	22,000
Sterling Drlg Co	14	dsl	375	Brewster N-4	432	7,500
	4	dsl	1075	National 50-A	900	12,000
Tri-Service Drlg Co	8	gas	700	OILWELL 76	900	13,000
Warton Drlg Co	4	gas	1300	National 100	1650	16,000
	5	dsl	1270	National 50-A	1370	11,000
	7	dsl	1200	National 75	1300	13,000
Willbaos Drlg Inc	2	gas	1150	Wilson Giant	840	10,000
	7	gas	1275	Emsco A-800	1275	16,000
MC KINLEY						
Kerr-McGee Corp	16-31	dsl-elec	1000	National 100	950	2,500/3⅞"
Nicor Drlg Co	37	dsl	850	Failing Stratmaster	450	6,500
RIO ARRIBA						
Aztec Well Serv	124	dsl	600	Wilson 75	1100	10,000
	50	dsl	400	Wilson Mogul	350	6,000
	56	dsl	400	Wilson Mogul	350	6,000
	65	dsl		Wilson Mogul		4,500
	73	dsl	400	Cardwell KM-210	500	6,500
	171	dsl	600	Wilson M-75	700	
	222		750	Wilson M-75	1100	
RIO ARRIBA (Contd)						
Cactus Drlg Corp	19	gas-dsl	1070	National 50-/	984	10,000
Coleman Drlg Co	3	dsl	900	Ideco H-44-CSC	636	8,000
Young Drlg Co	4	dsl	400	Cardwell K-500	600	8,500
ROOSEVELT						
Norton Drlg Co	4	dsl	500	Wilson 75	900	10,500
Republic Drlg & Serv Inc	4	dsl-elec	1200	OILWELL 760-E	1000	14,000
WEK Drlg Co Inc	3	dsl	450	Emsco S-45-E	220	6,500
SAN JUAN						
All Western Drlg	3	dsl	840	Emsco U-15	840	10,000
Arapahoe Drlg Co	10	gas-btne	700	National 50-A	500	12,000
	11	gas-btne	300	National T-32	320	9,000
	2	gas-btne	300	National T-32	320	8,000
	3	gas-btne	300	Wilson Mogul	320	6,500
	4	gas-btne	700	National 50-A	500	12,000
	6	dsl	300	National T-32	350	8,000
Aztec Well Serv	75	dsl	360	Cardwell KM-210	400	4,500
	89	dsl		Wilson Mogul		4,500
Bayless Drlg Co	1	dsl	1500	Ideco H-1000	950	10,000
	2	dsl	350	Challenger M-280	400	8,500
	3	dsl	1500	Cooper LTO-550	550	8,500
Brinkerhoff Drlg Co Inc	32	dsl	1000	Emsco GC-350	465	8,000
Brinkerhoff-Signal Inc	79	dsl	550	National 370	800	8,500
Cactus Drlg Corp	20	dsl	850	Brewster	540	7,000
Coleman Drlg Co	1	dsl	800	Wilson Mogul	750	8,000
Four Corners Drlg Co	10	dsl	750	Cardwell Drlg Co	636	8,000
	11	dsl	750	Cardwell KB-500	636	8,000
	2	dsl	750	Cardwell KB-500	636	8,000
	3	dsl	750	Cardwell KB-500	636	8,000
	5	dsl	750	Cardwell KB-500	636	6,000
	6	dsl	750	Cardwell KB-500	636	8,000
	7	dsl	750	Cardwell KB-500	636	8,000
	8	dsl	750	Cardwell KB-500	636	8,000
	9	dsl	750	Cardwell KB-500	636	8,000
Kenai Drlg of New Mexico Inc	10	dsl	800	Emsco GA-250-T	400	6,500
	31	dsl	1200	Wilson Giant	1000	8,500
LLL Drlg Co Inc	2	dsl	860	Cabot/Franks 750	860	10,000
Lama Drlg Co Inc	4	dsl	500	M-CSCO U-34	300	9,000/3½"
Young Drlg Co	2	dsl	600	Ideco DIR-701	600	8,500
	3	dsl	400	Wilson 75	600	8,500
SANDOVAL						
Aztec Well Serv Co	184	dsl	600	Wilson M-75	1100	
Brinkerhoff Drlg Co Inc	56	dsl-elec		Emsco A-110-E		18,000
Brinkerhoff-Signal Inc	78	dsl	1600	National 610	1100	12,500

NEW YORK

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
UNDESIGNATED						
Underwater Gas Dev Ltd	2	dsl	200	Ingersoll-Rand T-5	350	40,000
	4	dsl	320	Challenger 320	320	5,000
ALLEGANY						
Falman Drlg Co	7	dsl	350	Ideco H-44	550	8,000
CHAUTAUQUA						
Intl Petroleum Serv Co	6	dsl	475	Wilson 42	475	7,500
Underwater Gas Dev Ltd	5	dsl	250	Failing 3500	250	40,000
STEUBEN						
Falman Drlg Co	14	dsl	400	Brewster	350	7,500
WYOMING						
Intl Petroleum Serv Co	2	dsl	275	CP-7000	375	4,000

NORTH DAKOTA

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
UNDESIGNATED						
Bird Oil Equipment Ltd	3	dsl		U-36A-T	600	8,500
GCO Drlg Co	3	dsl	820	M-CSCO U-15	650	10,000
	4	dsl	1100	National 50-A	850	11,500
ADAMS						
Bomac Drlg	52	dsl	2000	National 80-B	1800	16,000
BILLINGS						
Anderson-Myers Drlg Co	8	dsl	1600	National 80	1800	16,000
Bomac Drlg	30	dsl	1700	OILWELL 96	1500	16,000
	33	dsl	2000	OILWELL 96	1500	16,000
	41	dsl	1000	Brewster N-7	1000	10,500
	49	dsl	2000	Gardner-Denver 800	1800	16,000
Cardinal Drlg Co	1	dsl	864	Emsco 500	864	10,500
	10	dsl	1296	Emsco GB-800	1296	13,500
	7	dsl	864	Emsco 500	864	10,000
	9	dsl	880	National 50-CA	880	11,500
Nicor Drlg Co	40	dsl	800	OILWELL 600	600	11,000
Pruet-Ram-Company	1	dsl-elec	2000	Emsco D-3	2000	18,000
Tom Brown Inc	16	dsl	750	National 50-CA	750	11,000
Transcontinental Drlg Co Inc	54	dsl	800	National 50-A	980	10,000
True Drlg Co	21	dsl	1800	National 80-B	1800	15,000
	23	dsl	1800	M-CSCO U-712-A	1800	16,000
Westburne Drlg Inc	59	dsl	1100	Ideco M-750-D	800	10,000
BOTTINEAU						
Bomac Drlg	21	dsl	380	Ideco H-35	330	7,000

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NORTH DAKOTA (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
BOWMAN						
Cardinal Drlg Co	11	dsl	864	Emsco GA-500	864	10,500
BURKE						
Bomac Drlg	31	dsl	700	Bethlehem S-45-E	700	7,500
DIVIDE						
Bomac Drlg	27	dsl	700	Brewster N-55	920	10,000
Nicor Drlg Co	16	dsl	750	OILWELL 76	1000	15,000
Penrod Drlg Co	104		2000	National 80-B	1760	15,000
DUNN						
Brinkerhoff-Signal Inc	5	dsl	1500	National 80	1500	15,000
	81	dsl-elec	2100	OILWELL 760-E	2100	16,000
Nicor Drlg Co	27	dsl	1000	Brewster N-95	1500	16,000
Noble Drlg Corp	E-551	dsl	1200	Emsco A-550	910	13,000
Ratliff Drlg Co	6	dsl	1650	Emsco GB-800	1650	17,000
Republic Drlg & Serv Inc	1	dsl-elec	1200	OILWELL 740-E	1000	14,000
EMMONS						
Cardinal Drlg Co	5	dsl	541	Emsco 250	560	7,500/4"
GOLDEN VALLEY						
Cyclone Drlg Co	3	dsl	1250	Unit U-30	1250	15,000
Nicor Drlg Co	25	dsl	1000	National 125	1500	1,500
Penrod Drlg Co	101	dsl	1684	Brewster N-46	1080	10,000
Republic Drlg & Serv Inc	2	dsl-elec	1200	OILWELL 740-E	1000	14,000
HETTINGER						
Cliffs Drlg Co	36	dsl	700	Emsco JB-1250	1000	16,000
MCKENZIE						
Amoy Drlg & Well Serv Corp	52	dsl	1500	National 1500	1500	16,000
Anderson-Myers Drlg Co	6	gas	1650	Emsco GB-800	1600	14,000
Atco Drlg Inc	54	dsl-elec	1800	National 610-UE	1800	12,000
Bomac Drlg	34	dsl	700	Brewster N-7	700	10,500
	35	dsl	2000	National 110	2300	20,000
	46	dsl	1300	National 610	1200	11,500
	47	dsl	2000	National 80-B	1800	16,000
	48	dsl	2000	Gardner-Denver 800	1800	16,000
	51	dsl	2600	National	2400	20,000
	54	dsl	1300	National 610	1200	11,500
	55	dsl	2000	Gardner-Denver 800	1800	16,000
Brinkerhoff Drlg Co Inc	17	dsl	1560	National 80-B	1560	14,000

NORTH DAKOTA (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
MCKENZIE (Contd)						
Brinkerhoff Drlg Co Inc	21	dsl	1040	Emsco GC-500	1040	11,500
Burris Drlg Co	101	dsl	1500	Gardner-Denver 1100-M	1000	18,000
	102	dsl	1000	Gardner-Denver 700	700	14,000
	103	dsl	1000	Gardner-Denver 700	700	14,000
Cliffs Drlg Co	6	dsl	800	National 610	800	12,500
Drilcon Inc	2	dsl	1176	National 80-B	1176	14,500
Dual Drlg Co	17	dsl	1650	Bethlehem M-58	1100	12,500
	3	dsl	1500	Wilson 120	1650	15,000
	4	dsl	1900	National 110	1500	19,000
Enopco	3	dsl	1620	National 80-B	1620	17,500
Forwest inc	2	dsl-elec	2600	Ideco E-2100	1800	22,000
	3	dsl-elec	2000	Ideco 1200-E	1800	15,000
	4	dsl-elec	2000	Ideco 1200	1800	15,000
Kenai Drlg Rocky Mountain Inc	1	dsl	2200	Emsco A-800	2450	15,000
Nicor Drlg Co	41	dsl	1000	Gardner-Denver 1100-M	1500	18,000
Noble Drlg Corp	N-82	dsl	1550	National 80	1000	15,000
	N-84	dsl	1600	National 80-B	1000	15,000
	N-88	dsl	1600	National 80-B	1000	15,000
	814	dsl	2000	National 80-B	1554	15,000
Penrod Drlg Co	105	dsl	1575	National 80-B	1760	15,000
Republic Drlg & Serv Inc	3	dsl-elec	1200	OILWELL 740-E	1000	14,000
Tom Brown Inc	22	dsl	750	National 50-CA	750	12,000
	23	dsl	1100	National 75-CA	1100	14,000
Transcontinental Drlg Co Inc	38	dsl	1750	Gardner-Denver GD-800	1836	15,000
	39	dsl		Gardner-Denver GD-800	1224	13,500
MCLEAN						
Brinkerhoff-Signal Inc	77	dsl	1500	Gardner-Denver 800-M	1500	13,500
MORTON						
Ratliff Drlg Co	15	dsl	1650	National 80-B	1650	18,000
MOUNTRAIL						
Bomac Drlg	26	dsl	950	M-CSCO U-15	920	9,500

NORTH DAKOTA (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
RENVILLE						
Bomac Drlg	40	dsl	1000	OILWELL 76	1000	12,000
Cardinal Drlg Co	12	dsl	400	National T-20	400	6,000/3½"
	3	dsl	400	Emsco GB-160	400	4,500/3½"
	6	dsl	560	Emsco 250	440	6,000/4"
	8	dsl	560	National T-20	400	5,000/4"
RICHLAND						
Drilcon Inc	5	dsl	1200	Ideco H-725	1000	11,500
Transcontinental Drlg Co Inc	51	dsl	1070	OILWELL 76	1224	12,500
SLOPE						
Bomac Drlg	45	dsl	2000	Gardner-Denver GD-800	1800	16,000
Noble Drlg Corp	N-811	dsl	1420	National 80-B	1420	15,000
Westburne Drlg Inc	62	dsl	1050	National 50-A	1200	11,000
UNDESIGNATED						
Nicor Drlg Co	30	dsl	1000	M-CSCO U-914-C	1400	18,000
WILLIAMS						
Anderson-Myers Drlg Co	16	dsl	2300	National 55	1200	18,000
	5	dsl	1000	Emsco GB-500	820	10,000
Bomac Drlg	36	dsl	1435	National 80	1435	14,000
	53	dsl	2000	National 80-B	1800	16,000
Brinkerhoff-Signal Inc	10	dsl	1000	M-CSCO U-40	1000	13,000
Cliffs Drlg Co	14	dsl	600	Emsco MJ-1250	600	15,000
Kenai Drlg Rocky Mountain Inc	12	dsl	1000	National 50-A	950	10,000
	26	dsl	1200	Wilson Atlas	1200	14,000
Kissinger Petroleum Corp	5	dsl	2000	OIME 1500-SL	1500	15,000
Nicor Drlg Co	17	dsl	700	OILWELL 76	1000	15,000
Noble Drlg Corp	OW-861	dsl	2400	OILWELL 860	2400	18,000
Penrod Drlg Co	103	dsl	1760	National 80-B	2000	20,000
Universal Drlg Co	2	dsl-elec	1000	Wilson 90-E	1200	13,000
Westburne Drlg Inc	53	dsl	750	National Ideal 55	950	12,000
WILLISTON						
Helmerich & Payne Intl Drlg Co	88	dsl-elec	1700	OILWELL 860	1000	16,000

OHIO

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
UNDESIGNATED						
Mutual of America Inc	2	dsl	145	Mayhew 3000	280	3,000
	4	dsl	220	Waleneer R-2	280	5,000
ASHTABULA						
P & P Drlg	6	dsl	470	Ideco H-35-S	470	6,500
	2	dsl	470	Ideco H-35-S	470	6,500
	5	dsl	550	Gardner-Denver 500-M	500	7,000
COLUMBIANA						
Armstrong Drlg Inc	27	dsl		Wilson Mogul 42	280	7,500
HOLMES						
Midwest Drlg Ltd	7	dsl	425	Ideco H-35	425	5,000
MEDINA						
Armstrong Drlg Inc	10	dsl	380	Mayhew 3000 Port	350	4,000
PORTAGE						
P & P Drlg Co	3	dsl	470	National T-45	470	7,500
	4	dsl	470	Brewster N-35	470	7,000
	7	dsl	470	Emsco WS-1	470	7,500
STARK						
P & P Drlg	1	dsl	470	Emsco WS-1	470	7,500
TRUMBULL						
Armstrong Drlg Inc	11	dsl	380	Cabot/Franks	380	7,500
	12	dsl	380	Mayhew 3000	318	4,000
Midwest Drlg Ltd	11	dsl	550	Cooper LTD-550	550	8,500
	111	dsl	425	Cooper LTD-350	425	7,500
WASHINGTON						
Apache Drlg Inc	1	dsl	300	Failing 2500	260	3,500
Cherokee Drlg & Oper Inc	1	dsl	300	Speedstar	320	3,500
	2	dsl	300	Failing 2500	280	3,000
Comanche Drlg Inc	1	dsl	300	Speedstar SS-40	320	3,500
FWA Drlg Co Inc	22	dsl	350	Wilson Super 38	350	4,500
Shawnee Drlg Co Inc	1	dsl	300	Speedstar SS-40	260	3,500
WAYNE						
Midwest Drlg Ltd	77	dsl	425	Ideco H-35	425	5,000

OKLAHOMA

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
UNDESIGNATED						
Jernigan Drlg Co	3	dsl	1000	Gardner-Denver 800	1000	18,000
Pool Well Serv Co	27	dsl		Cabot 500	500	5,500
	50	dsl	379	Cabot 500	500	5,500
Robinson Bros Drlg Co	10	dsl		Brewster N-45	3406	12,400
	2	dsl	600	OILWELL 66	1000	11,500
	4	dsl	1000	National 50	800	10,000
	5	dsl	1000	OILWELL 66	900	11,000
	Gary Jack	dsl-elec	2700	Gardner-Denver	2000	22,000
ALFALFA						
Lohmann-Johnson Drlg Co Inc	8	dsl	300	National 32	550	7,500

OKLAHOMA (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
ALFALFA (Contd)						
Top Drlg Co Inc	6	dsl	350	National T-32	350	7,500
ATOKA						
Arden Drlg Co	4	dsl	1800	Continental Emsco D-2	1000	16,000
BEAVER						
Damac Drlg Inc	3	dsl	700	Wilson Mogul	700	9,500
Eagle Drlg Inc	2	dsl	1000	National T-45	725	9,500
Gabbert-Jones Inc	3	dsl	550	Emsco 350	550	7,000
Lohmann-Johnson Drlg Co Inc	18	dsl	300	M-CSCO Unit 15 S/N 239	400	6,000
Nicor Drlg Co	12	dsl	950	Gardner-Denver 700-M	950	13,000
	2	dsl	1100	M-CSCO U-15	1100	12,000
	28	dsl	600	Unit U-15	700	12,500
Rains & Williamson Oil Co Inc	5	dsl	360	Ideco H-40	400	7,000
Service Drlg Co	9	dsl	500	M-CSCO U-15	800	9,200
Unit Drlg & Expl Co	18	dsl	1000	Gardner-Denver 500	1300	15,000
	1	dsl	500	Unit U-15	800	10,000
	15	dsl	1300	M-CSCO 914-C	1850	20,000
Zenith Drlg Corp Inc	3	dsl	800	Brewster N-75	800	10,000
	6	dsl	600	Emsco GB-350	600	8,500
	8	dsl	600	Emsco GB-350	600	8,500
BECKHAM						
Big Chief Drlg Co	45	dsl	1500	Brewster N-95-A	2250	18,000
Helmerich & Payne Intl Drlg Co	44	dsl	2160	OILWELL 96	2160	22,000
	78	scr	2000	National 11-OUE	1500	20,000
Loffland Bros Co	34	dsl-elec	3500	M-CSCO U-1220	2500	25,000
	104	dsl-elec	3300	Emsco 3000	3300	35,000
	102	dsl-elec	3300	M-CSCO U-1220-EBD	3300	30,000
Moran Drlg Corp	36	dsl	2300	Brewster N-12	2500	20,000
Noble Drlg Corp	N-115	dsl	2400	National 110	1375	20,000
	N-83	dsl	1600	National 80-B	1000	15,000
Parker Drlg Co	167	dsl	1650	OIME SL-1500	1650	20,000
	170	dsl	1650	OIME SL-1500-P	1650	20,000
	181	dsl	3000	OIME Hercules 3000-E	3000	30,000
	43	gas	2000	OILWELL 96	2000	23,000
	54	gas	2000	National 130	2000	25,000
Rowan Drlg U S	9	dsl-elec	2600	National 1625-DE	2000	25,000
	31	dsl	3200	National 1625	3300	30,000
Sharp Drlg Co Inc	40	dsl	2150	OILWELL 96	2115	18,000
TRG Drlg Corp	10	dsl	3000	Gardner-Denver 3000-E	3000	30,000
	18	dsl-elec	2200	Gardner-Denver 1500-E	2400	22,000
	19	dsl-elec		Gardner-Denver	2400	22,000
Tri-Land Drlg Co	1	dsl	1500	Gardner-Denver 1500-E	1500	21,000
Trigg Drlg Co Inc	3	dsl	1200	National 100	1600	14,000
U R C Drlg Corp	4	dsl-elec	1500	M-CSCO 914-C	1500	22,000
Unit Drlg & Expl Co	7	dsl	500	Unit U-15	960	10,000
BLAINE						
Austin Drlg Co		dsl	900	M-CSCO U-36-57	1000	12,000
Barrett Drlg Co	10	gas	600	National 75		12,000
Drillers Inc	25	dsl	1000	Brewster N-75	1000	14,000
Eagle Drlg Inc	3	dsl	1100	BDW-800	1500	14,000
FWA Drlg Co Inc	10	dsl	1000	Wilson Giant	800	10,750
Harper-Turner Drlg	2	dsl	800	National 50	820	10,500
URC Drlg Corp	1	dsl	860	National 50	860	10,000
Viersen & Cochran Drlg Co	1	dsl	800	OILWELL 660	800	12,000
BRYAN						
Sloan Drlg Co	16	dsl	400	Wilson 42	600	7,000
CADDO						
Austin-Dunham Inc		dsl	850	Brewster N-75	850	15,000
		gas	1000	Brewster 75	1000	15,000
Big Chief Drlg Co	11	gas	1350	Brewster N-75	1350	13,000
Harper-Turner Drlg Co	11	dsl	2000	National 110	1500	20,000
Helmerich & Payne Intl Drlg Co	8	dsl	950	National 55	950	15,000
Honeymon Drlg Co Ltd	4	dsl	1500	OIME S/L 1500	1500	18,000
ITT Eason Oil Co	12	dsl	2000	National 80-B	1200	16,000
	17	dsl	2600	Emsco C-1	2000	21,000
Mercury Drlg Co	10	dsl	1000	Gardner-Denver 800	2000	18,000
	7	dsl	1000	Gardner-Denver 800-M	2000	18,000
	1	dsl	1000	Emsco 800	1470	16,500
	6	dsl	750	Emsco 500	1470	14,000
Moran Drlg Corp	31	dsl	2900	Ideco 2500-Elec	2500	25,000
Nicor Drlg Co	1	dsl	1500	M-CSCO U-20	1500	15,000
	11	dsl	1100	M-CSCO U-1220-B	2805	21,000
	15	dsl	1350	OILWELL 76	1350	16,000
	31	dsl-elec	1000	M-CSCO U-914-EC	1400	18,000
	4	dsl	1200	Gardner-Denver 800-M	1200	15,000
	6	dsl	1200	National 55	1200	14,500

OKLAHOMA (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
CADDO (Contd)						
Nicor Drlg Co	9	dsl	1800	OIME 1500	2070	18,000
T R G Drlg Corp	11	dsl-elec	2000	Gardner-Denver 1100	2400	18,000
	12	dsl-elec	1500	Gardner-Denver 800	1800	15,000
	23	dsl	1400	National 80-B	1305	14,500
Unit Drlg & Expl Co	3	dsl	500	National 50-A	960	10,000
CANADIAN						
Basin Drlg Corp	5	dsl	600	National CA-75	850	11,000
	6	dsl	650	Brewster N-7	850	9,500
	8	dsl	600	Gardner-Denver 500	850	12,500
Big Chief Drlg Co	24	gas	1200	M-CSCO U-15	900	11,000
	36	gas	1400	National 55	900	11,000
	41	gas	1400	Brewster 75	900	12,000
Bonray Drlg Corp	21	dsl	990	Ideco H-750	660	12,000
	22	dsl	800	Ideco H-525	800	9,500
	4	gas	900	Unit U-40	900	14,000
Cactus Drlg Corp	6	dsl	1070	Ideco 7-11 *	1400	14,000
Drillers Inc	26	dsl	700	Emsco GB-500	700	10,000
	30	dsl	750	Unit U-15-M	850	11,000
FWA Drlg Co Inc	5	dsl	1000	Wilson Giant	800	11,000
	9	dsl	1000	Wilson Giant	800	10,750
Honeymon Drlg Co Ltd	1	dsl	800	National 50-A	800	12,000
Jernigan Drlg Co	2	dsl	650	National 50-A	1000	14,000
Mercury Drlg Co	2	dsl	750	Emsco Unit U-15	940	12,000
Nicor Drlg Co	19	dsl	650	Ideco 750	850	14,000
	5	dsl	800	Bethlehem C-50	800	10,000
	7	dsl	800	M-CSCO U-15	800	11,500
Noble Drlg Corp	E-554	dsl	1450	Emsco A-550	1000	13,000
Schlensker Drlg Corp	2	gas	700	Bethlehem MC-450	900	12,000
Smart Drlg Co	2	dsl-elec	677	M-CSCO Unit 36	1000	14,000
	6	dsl	700	National 50	950	11,000
T R G Drlg Corp	2	dsl	825	Unit U-15	870	10,000
Thomas Drlg Co	9	dsl	640	Brewster N-46	640	12,000
Trigg Drlg Co Inc	4	dsl	700	National 75	950	12,000
	5	gas-btne	500	National 50-A	800	10,000
Viersen & Cochran Drlg Co	12	gas	500	National 50	800	9,000
Warren Interstate Drlg Co	1	dsl	1000	Cabot 2042-TDHT	700	10,700
CARTER						
Ardmore Drlg Co	1	dsl	450	Ideco H-30-D	450	5,000
	3	gas	1350	Ideco M-10000	1350	12,500
Big Chief Drlg Co	12	gas	1600	National 80-B	1600	14,000
Bodard & Hale Drlg Co	8	dsl	1100	National 50	1100	10,500
Dual Drlg Co	8	dsl	1500	Wilson 75	750	9,500
E W Moran Drlg Co Inc	1	dsl	900	Wilson Giant	800	12,000
	12	dsl	950	Bethlehem S-60	700	10,000
Jones Drlg Corp	2	dsl	385	Wilson Super 38	385	5,000
Pilgrim Drlg Co	1	dsl	750	Ideco H-35	600	8,000
Schlensker Drlg Corp	8	dsl	635	Wilson Mogul 42	475	7,000
T R G Drlg Corp	15	dsl	1000	Wilson Super Atlas	1305	14,000
Thomas Drlg Co	6	gas	500	National 50-A	600	10,500
Top Drlg Inc	2	dsl	1200	OILWELL 660	1200	14,000
CIMARRON						
Service Drlg Co	3	dsl	320	M-CSCO U-34	450	6,500
CLEVELAND						
Frio Drlg & Prod Co	3	dsl	600	Brewster N-55	900	10,500
Johnson-Bates Drlg Co Inc	3	dsl	1100	M-CSCO U-34	1100	10,500
	7	dsl	1000	Wilson Titan	1350	12,000
Project 5 Drlg Co Inc	1	dsl	220	Gardner-Denver	220	1,900
COMANCHE						
E W Moran Drlg Co	22	dsl-elec	3000	Emsco	3200	30,000
Nicor Drlg Co	29	dsl	1500	Gardner-Denver E-1500	2000	25,000
Parker Drlg	193	dsl	4000	OIME 3000-E	4000	30,000
	114	dsl-elec	2700	Ideco 3000-E	2700	30,000
	172	dsl	1650	OIME SL-1500-P	1650	20,000
	186	dsl	2000	OIME 1500	2000	22,000
Ratliff Drlg Co	1	dsl	2640	OILWELL 96	2640	24,000
CREEK						
E E Whitehead Drlg Contrs	1	gas	425	Wilson Model 30	400	4,000
McLennan Drlg Co	4	dsl	318	Gardner-Denver	238	2,000/3½"
Quintex Drlg Co Inc	4	dsl	445	Eubanks Speedstar Double Drum	250	3,000
CUSTER						
Barrett Drlg Co	9	dsl	2400	Gardner-Denver 700	1000	15,000
	7	dsl	1000	Gardner-Denver 800	1000	18,000
Bonray Drlg Corp	1	dsl	1230	Emsco J-1000	1230	16,000
	20	dsl	1680	Ideco Super 711	1680	17,000
Cliffs Drlg Co	40	dsl	1300	National 1320-UE	1300	
E W Moran Drlg Co Inc	5	dsl	1850	Wilson 120	1100	18,000
FWA Drlg Co Inc	19	dsl	1200	Wilson Titan	1050	13,500
	7	dsl	1200	Wilson Titan	900	13,500
Harper-Turner Drlg	1	dsl	800	National 55	1000	12,000
Hickman Drlg Co	6	dsl	1450	BDW-800	1100	14,000
Loffland Bros Co	306	gas	1150	Brewster N-95	1300	17,000
	317	dsl	2250	Gardner-Denver 2100	2500	24,000

OKLAHOMA (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
CUSTER (Contd)						
Loffland Bros Co	327	dsl	2250	Gardner-Denver 1500	2500	24,000
	73	dsl-elec	2160	M-CSCO U-712-A	2200	18,000
Mercury Drlg Co	5	dsl	1350	Gardner-Denver 1100	2775	22,000
Moran Drlg Corp	35	dsl-elec	1800	OILWELL 76	1200	15,000
Noble Drlg Corp	GD-2	dsl	2600	Gardner-Denver 2100	2500	25,000
	N-85	dsl	1700	National 80-B	1000	18,000
	N-87	dsl	2000	National 80-B	1000	15,000
Parker Drlg Co	120	dsl	1600	Ideco 1700-M	1600	20,000
	182	dsl	3000	OIME Hercules 3000-E	3000	30,000
Pilgrim Drlg Co	2	dsl	1300	OILWELL 76	1000	16,000
Ratliff Drlg Co	8	gas-btne	1020	National 50-A	1020	10,000
T R G Drlg Corp	17	dsl-elec	2200	Gardner-Denver 1500-E	2400	22,000
Triad Drlg Corp	6	dsl	1600	Brewster N-95-A	1600	16,000
Trigg Drlg Co Inc	2	gas-btne	700	National 75	900	12,000
Viersen & Cochran Drlg Co	16	dsl	3200	National 1320-UE	3417	25,000
DEWEY						
Hickman Drlg Co	3	dsl	1200	Emsco GB-500	800	12,000
Jimmie Austin & Sons Inc		dsl	900	M-CSCO U-36	900	12,000
Mercury Drlg	4	dsl	750	Emsco Unit U-15	980	12,000
Moran Drlg Corp	33	dsl-elec	2300	National 110	2000	20,000
Rine Drlg Co	3	dsl	750	Brewster N-55	750	9,500
	4	gas	750	Brewster N-75	750	12,000
	5	dsl	1000	Gardner-Denver GD-700	1000	12,000
	7	dsl	750	Gardner-Denver 700	750	13,500
	9	dsl	1000	Gardner-Denver 800	1000	13,500
Smart Drlg Co	5	dsl	600	National 50-CA	950	11,000
Top Drlg Inc	1	dsl	650	Brewster N-7	650	10,000
	5	dsl	1000	M-CSCO U-15	1000	104/½"
Trend Drlg Co	3	dsl	1000	National 75	1200	12
	4	dsl	900	M-CSCO Unit U-36-A	900	13,000
Triad Drlg Corp	3	dsl	900	Brewster N-55	900	12,000
Unit Drlg & Expl Co	11	dsl	1000	Gardner-Denver 700	1300	14,000
Viersen & Cochran Drlg Co	2	dsl	600	National 55	800	12,000
ELLIS						
Austin Drlg Co		gas	700	Brewster N-75	900	14,000
Nicor Drlg Co	14	dsl	950	Gardner-Denver M-500	950	11,000
Penrod Drlg Co	26	dsl	2600	Emsco C-2	1950	25,000
Pulliam Drlg Co	11	dsl	2400	National 80-B	1600	15,000
	12	dsl	1800	National 50-A	1200	11,000
Smart Drlg Co	4	dsl	1000	OILWELL 76	1400	16,000
Triad Drlg Corp	5	dsl	1100	Ideco Super 750	1100	14,000
Unit Drlg & Expl Co	19	dsl	700	Gardner-Denver	960	12,000
	2	dsl	700	Unit U-15	960	11,000
Viersen & Cochran Drlg Co	17	dsl	600	OILWELL 660	830	12,000
	4	dsl	600	National 55	800	12,000
GARFIELD						
Astro Drlg Co	17	dsl	800	Cabot 750	700	11,000
Basin Drlg Corp	10	dsl	600	M-CSCO U-15	850	10,000
	7	dsl	650	Brewster N-45	850	8,500
C & R Drlg Corp	1	dsl	425	Brewster N-4	400	5,500
Cyclone Drlg & Workover Inc	12	dsl	800	Unit U-34		600
Hughes Drlg Co	2	dsl	450	Ideco H-35	450	7,600
	4	dsl	600	Ideco DIR-7015	600	8,500
L & K Drlg Co	40	dsl	900	Emsco 350	900	9,000
Nicor Drlg Co	18	dsl	595	Unit U-15	700	12,500
Sabre Drlg Div TRG Drlg Corp	7	dsl	600	M-CSCO U-15	450	7,500
	8	dsl	1050	M-CSCO U-15	1050	9,000
Trend Drlg Co	2	dsl	500	Ideco H-35	500	7,500
GARVIN						
Astro Drlg Co	20	dsl	550	Franks 550	456	8,500
Bodard & Hale Drlg Co	10	dsl	450	OILWELL 52-T	600	9,000
	7	dsl	400	Bethlehem S-55	600	8,000
	9	dsl	550	Bethlehem S-55	700	9,000
Bonray Drlg Corp	5	gas	700	National 50-A	700	9,000
E W Moran Drlg Co	20	dsl	850	Spencer 7000	550	8,000
Jerry Scott Drlg Co Inc	4	dsl	600	Bethlehem C-50	640	10,000
Jones Drlg Corp	15	dsl	1000	Brewster N-75-A	1000	14,000
Ratliff Drlg Co	2	gas	1020	National 55	1020	14,000
	7	gas-btne	1020	National 75-CB	1020	15,000
GRADY						
Arden Drlg Co	5	dsl-elec	2400	Emsco D-3	2000	18,000
Astro Drlg Co	15	dsl	912	Super Wilson GI	912	10,500
	24	dsl	825	Brewster N-55	825	12,500
Big Chief Drlg Co	43	dsl	2000	National 80-B	2250	16,000
	22	gas	1600	National 80-B	1700	14,000
	35	gas	2610	National 110	2610	20,000

OKLAHOMA (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
GRADY (Contd)						
Big Chief Drlg Co	44	dsl	2400	Brewster N-95	2400	20,000
Cactus Drlg Corp	32	dsl	1600	National 100	2100	20,000
FWA Drlg Co Inc	6	dsl	1000	Wilson Giant	800	9,500
Harper-Turner Drlg Co	10	dsl	2000	National 80-B	1500	16,000
Helmerich & Payne Intl Drlg Co	84	scr	1100	OILWELL 760-E	850	
Honeymon Drlg Co Ltd	3	dsl	1100	OIME S/L 1000	1100	14,000
Loffland Bros Co	111	dsl-elec	3300	Emsco A-1500	2200	24,000
	206	gas-elec	2160	M-CSCO U-914-B	2200	20,000
	99	gas	1300	M-CSCO U-20	1645	15,000
Magic Circle Drlg Co	12	dsl	900	National 50-A	900	12,000
Mercury Drlg Co	8	dsl	1000	Gardner-Denver M-700	1100	16,000
Nicor Drlg Co	10	dsl	1000	M-CSCO U-914-C	1725	18,000
	34	dsl-elec	1000	M-CSCO U-914-EC	1400	18,000
	34	dsl-elec	1300	M-CSCO U-914-EC	1400	18,000
Noble Drlg Corp	N-114	dsl	1900	National 110	1375	20,000
Parker Drlg Co	179	dsl	3000	OIME Hercules 3000-E	3000	30,000
Project 5 Drlg Co Inc	8	dsl	220	Emsco G-42	450	10,000
Smart Drlg Co	1	dsl-mech	500	M-CSCO Unit U-15	950	13,000
	10	dsl	1000	M-CSCO U-20	1500	18,000
	9	dsl	1000	M-CSCO U-15	950	13,000
Unit Drlg & Expl Co	17	dsl	700	Gardner-Denver 700	1300	14,000
Viersen & Cochran Drlg Co	10	dsl	2000	National 100	1040	17,000
	15	dsl	1010	OILWELL 660	830	13,000
	3	dsl	800	National 75-CA	800	14,000
Warrior Drlg Co	1	dsl	568	Emsco 350-GA	700	9,000
GRANT						
C & R Drlg Corp	4	dsl	550	Wilson 42	400	6,500
HARPER						
Driller Inc	23	dsl	600	Unit U-15	600	10,000
Rine Drlg	10	dsl	550	Brewster		9,500
Sage Drlg Co Inc	3	dsl	400	Ideco H-40	400	8,500
Triad Drlg Corp	1	dsl	340	National T-32	340	7,500
Unit Drlg & Expl Co	4	dsl	500	Unit U-15	960	10,000
HASKELL						
Miller Drlg Co	108	gas	450	M-CSCO U-15	450	8,000
HEMPHILL						
Drillers Inc	36	dsl	600	Emsco GB-350	750	9,000
HUGHES						
Jerry Scott Drlg Co Inc	2	dsl	420	Unit U-34	430	6,500
Project 5 Drlg Co Inc	4	dsl	300	Brewster N-3	300	4,000
	6	dsl	350	Franks 147-A	350	4,500
	7	dsl	365	Challenger 3-T	3000	4,000
R W I T Drlg Co Inc	8	gas-LPG	345	M-CSCO U-34	280	6,000
Sloan Drlg Co	12	dsl	370	Brewster N-4	475	6,500
JACKSON						
Jack E Bearden Drlg Co	2	dsl	1500	Wilson Giant Roadair	700	9,000
KAY						
C & R Drlg Corp	3	dsl		M-CSCO U-15	450	7,500
Kay Expl Co	3	dsl	480	Failing 2500	480	3,500
KINGFISHER						
A & P Drlg Co Inc	1	gas	775	Emsco 450	225	9,000
	2	gas	825	Emsco 500	275	9,000
Astro Drlg Co	16	dsl	920	National 50-A	920	11,000
Austin Drlg Co		gas	600	M-CSCO U-36	700	11
Barrett Drlg Co	2	gas	600	National 50	600	9,000
	6	dsl	700	M-CSCO U-15	650	9,000
Basin Drlg Corp	1	dsl	650	Emsco GB-500	850	9,500
	3	dsl	650	M-CSCO U-15	850	9,500
	9	dsl	600	M-CSCO U-15	850	10,000
	2	dsl	650	National 50-A	850	9,500
BF & B Drlg Inc	1	dsl	600	Unit U-15	600	10,000
Cactus Drlg Corp	33	dsl	1050	National 100	1650	16,000
Drillers Inc	27	dsl	700	Emsco GB-500	750	10,000
Harper-Turner Drlg	4	dsl	600	National 50	820	9,000
Hughes Drlg Co	3	dsl	600	Emsco GB-350	600	8,500
	7	dsl	500	Ideco BIR-550	500	7,500
Logan Drlg Co Inc	3	dsl	900	Gardner-Denver 500	900	10,000
Magic Circle Drlg Corp	11	dsl	900	National 50-A	900	10,000
	7	dsl	320	Cabot 750	700	9,500
Ratliff Drlg Co	11	dsl	850	Brewster N-7	850	10,000
Sage Drlg Co Inc	4	dsl	800	M-CSCO U-15	800	9,500
Smart Drlg Co	3	dsl	500	M-CSCO Unit U-15-A	1000	13,000
Trend Drlg Co	5	dsl	900	M-CSCO Unit U-15-CA	900	11
U R C Drlg Corp	2	dsl	1100	National 100	1100	15,000
	3	dsl	860	Emsco 500	860	10,500
LATIMER						
Dual Drlg Co	26		18000	Wilson 150-A	1650	16,000
	18	dsl	1850	Bethlehem M-810	1100	15,000
	20	dsl	2800	OILWELL 860	1400	22,000
Jimmie Austin & Sons Inc		dsl	900	Brewster N-75	900	14,000
Miller Drlg Co	106	gas	900	National 75	900	13,500

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OKLAHOMA (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
LATIMER (Contd)						
Miller Drlg Co	110	dsl	1500	OIME SL-1500	1500	20,000
LE FLORE						
Dual Drlg Co	10	dsl	1500	Wilson 120	1100	15,000
	14	dsl	2100	Wilson Giant	900	12,000
Unit Drlg & Expl Co	14	dsl	1000	Gardner-Denver 700	800	14,000
LINCOLN						
Bodard & Hale Drlg Co	6	dsl	550	National T-20	450	6,500
Cyclone Drlg & Workover Inc	11	dsl	1342	Unit U-34	400	600
Frio Drlg & Prod Co	1	dsl	350	Emsco 350	550	8,500
Johnson-Bates Drlg Co Inc	1	gas	350	M-CSCO U-34	300	5,700
Project 5 Drlg Co Inc	2	dsl	450	Brewster N-3		5,500
	5		450	American 250-BDW	450	6,000
	9	dsl	300	American 250	450	6,000
Sabre Drlg Div TRG Drlg Corp	6	dsl	450	National T-20	335	6,000
Sloan Drlg Co	18	dsl	450	Wilson 42	450	7,000
LOGAN						
Bodard & Hale Drlg Co	5	dsl	400	M-CSCO U-34	400	6,500
Bonray Energy Corp	7	dsl	476	Cooper 66	318	6,000
Frio Drlg & Prod Co	2	dsl	350	Wilson Mogul 42	550	7,000
	4	dsl	1100	National N-55	1100	11,500
Gene Porter Drlg Co	1	dsl	600	M-CSCO U-34	435	6,000
Hughes Drlg Co	5	dsl	400	Ideco BIR-3084	300	6,200
	6	dsl	450	Ideco BIR-3084	300	6,200
Johnson-Bates Drlg Co Inc	2	gas	325	M-CSCO U-34	245	6,500
	4	dsl	400	M-CSCO U-34	375	6,500
Project 5 Drlg Co Inc	3	dsl	450	Unit U-34	450	6,500
Sabre Drlg Div TRG Drlg Corp	9	dsl	450	M-CSCO U-34	450	6,000
Sumpter & Barker Drlg Co Inc	1	dsl	930	Wilson Mogul 42 Trailer Mounted	430	6,500
Venture Drlg Co	2	dsl	400	Cabot/Franks 750	700	6,500
LOVE						
Ardmore Drlg Co	2	gas	700	Wilson Giant	700	9,000
Big Chief Drlg Co	42	dsl	1800	National 80	1800	15,000
E W Moran Drlg Co Inc	15	dsl	900	Bethlehem S-55	750	10,000
	8	dsl	1600	Wilson 150	1000	15,000
Jones Drlg Corp	14	dsl	1000	Gardner-Denver	1000	13,000
	7	gas	750	Brewster N-75	750	12,000
	8	gas	700	National 55	700	12,000
	9	gas	750	C-Emsco A-550	750	12,000
Ratliff Drlg Co	9	gas	700	National 50-A	1020	11,000
Schlensker Drlg Corp	1	gas	700	National 75-CA	1050	14,000
	10	gas	900	Gardner-Denver 800-M	1350	16,000
	9	dsl	1500	OIME 1500-SL	2205	18,000
MAJOR						
Austin-Dunham Inc		gas	350	National 50	600	12,000
Big Chief Drlg Co	9	dsl	500	Ideco H-35-G	700	10,000
Bonray Drlg Corp	6	gas	700	National 50-A	700	9,000
FWA Drlg Co Inc	21	dsl	1000	Wilson Mogul 42	800	9,500
Hughes Drlg Co	1	dsl	450	Ideco H-35	450	7,400
Ratliff Drlg Co	16	dsl	750	Unit U-15	750	10,000
Thomas Drlg Co	4	dsl	500	Emsco 500	500	10,000
	5	dsl	300	Wilson Giant	300	7,500
Trend Drlg Co	6	dsl	1100	Ideco 725	1100	12,000
	7	dsl	550	Ideco H-44	608	8,500
	1	dsl	500	M-CSCO Unit U-15-A	700	10
Viersen & Cochran Drlg Co	5	dsl	600	OILWELL 660	800	12,000
MARSHALL						
E W Moran Drlg Co Inc	17	dsl	2600	Wilson 250	1500	20,000
Kingery Drlg Co Inc	10	gas	300	Wilson Giant	300	5,000
Nicor Drlg Co	3	dsl	700	M-CSCO U-15	700	11,500
T R G Drlg Corp	14	dsl-elec	2000	Gardner	2400	18,000
Viersen & Cochran Drlg Co	18	dsl	1000	National		
MC CLAIN						
Big Chief Drlg Co	20	gas	1200	M-CSCO U-40	960	13,500
Jerry Scott Drlg Co Inc	6	dsl	1342	Emsco Unit MU-15	1342	10,500
Jimmie Austin & Sons Inc		dsl	900	Emsco 450	900	12,000
Johnson & Bates Drlg Co	5	dsl	1000	M-CSCO U-15	1100	10,000
MC INTOSH						
R W I T DRLG CO INC	2	gas-LPG	345	M-CSCO U-34	280	6,000
MURRAY						
T R G Drlg Corp	16	dsl-elec	1500	Gardner-Denver	1800	15,000
NOBLE						
Cyclone Drlg & Workover Inc	9	dsl	800	Unit U-34	400	6,000
NOWATA						
Turner-Winter & Expl Co	1	dsl	900	Jaswell J-2400	900	2,400
Hughes Drlg Co	8	dsl	400	Ideco H-35	375	6,200
Kay Drlg Co	1	dsl	480	Brewster N-4	480	6,000
Northeast Drlg Co Inc	1	dsl	400	Ideco BIR-3084	300	6,200
OCHILTREE						
Service Drlg Co	4	dsl	500	M-CSCO U-15	800	9,200
OKLAHOMA						
Bodard & Hale Drlg Co	14	dsl	400	Brewster N-4	450	7,000
Brinkerhoff-Signal Inc	80	dsl	1500	National 80-B	1500	16,000
Cactus Drlg Co	57	dsl	550	Ideco H-35	450	6,500
Compadre Oil Corp	1	dsl	300	Walker-Neer A-250-40	300	5,000
Cyclone Drlg & Workover Inc	8	dsl	800	Unit U-34	1342	6,000
ITT Eason Co	21	dsl-elec	2000	Emsco D-2	750	13,000
	19	dsl	1800	Emsco D-2	750	13,000
	20	dsl-elec	2000	Emsco D-3	1000	16,000
OKMULGEE						
Earnest Inc	1	dsl	6500	Cabot 500	400	6,500
	2	dsl	335	Cabot Franks	318	5,500
	3	dsl	6500	Cabot	400	
OSAGE						
Equity Drlg Co	150	dsl	300	Failing 2500	300	3,000/3½"
	164	dsl	200	Mayhew 2000	150	2,000/3½"
Layton Oil Co	6	dsl	250	Wilson Double Drum	250	3,000/2⅜"
McLennan Drlg Co	3	dsl	450	Franks Model 137	318	4,500
	5	dsl	450	Franks Model 658	318	4,000
PAYNE						
Bodard & Hale Drlg Co	4	dsl	400	M-CSCO U-34	400	6,500
Equity Drlg Co	175	dsl	300	Wilson Super 38	300	4,200
Kay Drlg Co	2	dsl	500	Cooper LTD 550	500	8,500
Mar-Tay Drlg Co	1		450	Cardwell K-200-C	350	5,000
PITTSBURG						
Arden Drlg Co	1	dsl-elec	1600	Continental Emsco D-2	1200	16,000
	3	dsl	2500	Continental Emsco C-1	1500	20,000
Big Chief Drlg Co	25	dsl	3000	National 110	2000	20,000
Dual Drlg Co	6	dsl	600	Emsco GB-350	560	7,500
R W I T Drlg Co Inc	9	gas-LPG	345	Wilson	280	6,000
Sloan Drlg Co	14	dsl	370	National T-20	500	6,500
Unit Drlg & Expl Co	5	dsl	950	Unit U-15	600	10,000
PONTOTOC						
Baulch Drlg Co	1	dsl	350	Brewster N-4	275	4,800
Bodard & Hale Drlg Co	11	dsl	400	Brewster N-4	450	6,000
Cyclone Drlg & Workover Inc	7	dsl	400	Unit U-34	955	
POTTAWATOMIE						
Bodard & Hale Drlg Co	16	dsl	550	Ideco H-37	400	6,500
Falcon Drlg Co	1	dsl	400	Bethlehem S-45-A	400	7,000
Jerry Scott Drlg Co Inc	1	dsl	350	Brewster N-4	350	5,500
	5	dsl	375	Bethlehem S-45	375	6,000
ROGER MILLS						
Baker & Taylor Drlg Co	3	dsl	1200	M-CSCO U-20	1200	18,000
	6	dsl	1400	M-CSCO U-40	1400	20,000
Big Chief Drlg Co	40	dsl-elec	3000	Emsco Electrohoist III	3000	25,000
E W Moran Drlg Co Inc	10	dsl	3000	OILWELL 96	2800	25,000
Helmerich & Payne Intl Drlg Co	89	dsl-elec	1500	National 110-UE	2000	20,000
Jimmie Austin & Sons Inc		dsl	1000	BDW 800-MI	900	15,000
Loffland Bros Co	123	gas	1975	National 130	2200	26,000
	311	dsl	2250	Gardner-Denver 1500	2500	24,000
Mercury Drlg Co	9	dsl	1350	Gardner-Denver 1500	2800	25,000
	3	dsl	1000	OILWELL 96	2010	22,000
Moran Drlg Corp	66	dsl	1400	Brewster N-75-A	1000	12,000
	3	gas	1800	Bethlehem M-810	1200	15,000
	34	dsl	1700	OILWELL 760	1200	15,000
	38	dsl-elec	3200	M-CSCO C-2	2000	25,000
Nicor Drlg Co	32	dsl-elec	1300	M-CSCO 1220-E	2000	25,000
	33	dsl-elec	1000	M-CSCO U-914-EC	1400	18,000
Noble Drlg Corp	GD-1	dsl	2650	Gardner-Denver 1500	3000	25,000
Parker Drlg Co	71	gas	2000	National 125	2000	23,000
Sharp Drlg Co Inc	58	dsl	2670	OILWELL 96	2895	23,000
Smart Drlg Co	7	dsl	1200	Unit U-20	1200	16,000
T R G Drlg Corp	22	dsl	1290	National 80-B	1305	14,500
Trigg Drlg Co Inc	8	dsl	1200	National 125	1600	20,000
Viersen & Cochran Drlg Co	19	dsl	800	National 610	830	12,000
SEMINOLE						
Jerry Scot Drlg Co Inc	7	dsl	350	Wilson Giant	350	7,000
Sloan Drlg Co	10	dsl	370	M-CSCO U-34	475	6,500
SEQUOYAH						
Dual Drlg Co	2	dsl	950	Wilson Giant	650	9,500
Miller Drlg Co	111	dsl	350	Spencer Harris 5000	300	6,000/3½"
STEPHENS						
Ardmore Drlg	4	gas	600	Wilson	400	500
Gay Drlg Contractors	1	gas	80	2500 Series Wichtex	80	2,800
Guffey-Schlensker Drlg Corp	2	dsl	600	Brewster N-45	700	8,000

OKLAHOMA (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
STEPHENS (Contd)						
ITT Eason Oil Co	18	dsl-elec	2300	Emsco C-1E	1500	21,000
Jones Drlg Corp	11	dsl				8,500
	12	dsl				8,500
	5	gas	600	Spencer 7000	400	6,000
	6	dsl	600	Spencer 7000	400	7,000
Loffland Bros Co	227	dsl	2200	M-CSCO U-914-A	2500	22,000
Nicor Drlg Co	8	dsl	700	National 50-CA	950	11,000
Noble Drlg Corp	N-117	dsl	2250	National 110-UE	2000	22,000
Ratliff Drlg Co	10	gas	1020	National 50	1020	10,000
Smart Drlg Co	8	dsl	950	Brewster N-55	700	12,000
T R G Drlg Corp	1	dsl	1245	National 75	1305	13,500
	3	dsl	995	Unit U-15	1305	10,500
Top Drlg Inc	4	dsl	1200	OILWELL 660	1200	14,000
Vi-Rai Drlg Co	1	dsl	350	Wilson Mogul 42	350	5,500
	2	dsl	120	Howard-Turner M-110	210	2,000
TEXAS						
Gabbert-Jones Inc	12	dsl	500	M-CSCO U-15	500	6,000
Lohmann-Johnson Drlg Co Inc	10	dsl	350	National 50	600	5,500
	15	dsl	750	Brewster N-45	185	6,000
Sage Drlg Inc	6	dsl	400	Emsco 350	400	8,000
Service Drlg Co	5	dsl	600	Emsco U-15	800	10,000
	8	dsl	500	M-CSCO U-15	800	8,500
WASHITA						
Act Drlg Co	1	dsl	1750	Gardner-Denver 6-D 800	1000	16,000
Astro Drlg Co	19	dsl	912	Wilson Super Giant	912	12,500
Big Chief Drlg Co	37	gas	2200	Emsco 1250	1815	17,000
Bonray Drlg Corp	2	dsl	1650	OILWELL 860	1650	20,000
E W Moran Drlg Co Inc	11	dsl	2600	Wilson 150-A	1500	20,000
	9	dsl	1900	Ideco 1050-PR	1350	18,000
Helmerich & Payne Intl Drlg Co	85	scr	850	OILWELL 760-E	1100	
	48	dsl	1820	National 110	1820	22,000
	54	dsl	1450	OILWELL 76	1100	16,000
	55	gas	1555	National 55	1100	16,500
	76	dsl	1650	OILWELL 760	1650	16,500
	80	scr	2200	National 110-UE	1500	20,000
	82	scr	2800	OILWELL E-2000	2000	26,000
Loffland Bros Co	196	dsl-elec	3300	M-CSCO U-1220	2200	28,000
	218	dsl-elec	3300	M-CSCO U-1220-E	2200	28,000
	244	dsl-elec	2500	M-CSCO U-1220-E	2200	28,000
	32	dsl-elec	4000	Emsco CE-3000	3300	35,000
	324	dsl	2250	Gardner-Denver 1500	2500	24,000
	70	dsl-elec	3200	M-CSCO U-1220-EB	2000	32,000
Murco Drlg Corp	50	scr	2200	OILWELL 860-E	2000	18,000
Noble Drlg Corp	OW-22	dsl-elec	2800	OILWELL E-2000	2000	25,000
Parker Drlg Co	192	gas	1400	OIME 1000	1400	16,000
Ratliff Drlg Co	14	dsl	2640	M-CSCO U-1220-B	2640	28,000
Rowan Drlg U S	14	dsl	3200	National 1625-M	3000	35,000
	5	dsl	3200	National 1625-M	3000	35,000
Smart Drlg Co	11	dsl	1000	National 100	1500	18,000
T R G Drlg Corp	130		2200	Gardner-Denver 3000-E	2400	18,000
	20		2200	Gardner-Denver 1100-E	2400	18,000
Viersen & Cochran Drlg Co	6	dsl	2000	Bethlehem 1013	2400	25,000
WOODS						
E L Oliver Drlg Co	3	dsl	340	National T-12	250	5,000/4"
Lohmann-Johnson Drlg Co Inc	5	dsl	300	National 50	440	4,500
Sage Drlg Co Inc	5	dsl	400	National T-32	400	6,700
Thomas Drlg Co	2	dsl	300	National T-32	300	7,500
	8	dsl	300	Ideco H-35	300	7,500
Top Drlg Inc	3	dsl	400	OILWELL 500	450	8,500
WOODWARD						
Bonray Drlg Corp	3	gas	900	Brewster N-7	900	10,500
Eagle Drlg Inc	4	dsl	1100	M-CSCO U-15	850	10,000
Hickman Drlg	5	dsl	1450	BDW 800	1100	14,000
Pulliam Drlg Co	18	dsl	700	Emsco GA-250-T	350	8,000
Rine Drlg Co	6	gas	700	Brewster N-75	750	12,000
Triad Drlg Corp	2	dsl	340	Brewster N-45	550	9,000

OREGON

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
CLACKAMAS						
Taylor Drlg Co	4	dsl	750	National 50	750	9,000

PENNSYLVANIA

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
UNDESIGNATED						
Caster Well Drlg Inc		dsl		Jaswell 2400	150	2,400
		dsl		Jaswell 3500		3,500
Underwater Gas Dev Ltd	1	dsl	250	Failing 3500	200	40,000
CLARION						
Fairman Drlg Co	11	dsl	400	Ideco H-44	500	8,000
CLEARFIELD						
Delta Drlg Co	69	dsl		Spencer 7000	480	9,000
Fairman Drlg Co	6	dsl	350	Ideco H-44	550	8,000

PENNSYLVANIA (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
CLEARFIELD (Contd)						
Fairman Drlg Co	8	dsl	350	Ideco H-44	550	8,000
CRAWFORD						
Delta Drlg Co	92	dsl	250	Ideco H-35-KD	291	6,000
	91	dsl	400	Ideco H-35-KD	291	6,000
	77	dsl	400	Ideco H-35-KD	291	6,000
	78	dsl	400	Ideco H-35-KD	291	6,000
	79	dsl	250	Ideco H-35-KD	291	6,000
ERIE						
Intl Petroleum Serv Co	3	dsl	350	CP-T-750-DH	285	4,500
	4	dsl	475	Wilson 42	475	7,500
Union Drlg Inc	10	dsl		Ideco H-37	425	6,500
INDIANA						
Fairman Drlg Co	10	dsl	400	Wilson Mogul 42	350	5,000
	5	dsl	400	Cardwell	350	4,000
	9	dsl	400	Ideco H-44	500	8,000
JEFFERSON						
Fairman Drlg Co	12	dsl	400	Ideco	250	5,000
SOMERSET						
Delta Drlg Co	71	dsl	400	Spencer 7000	440	9,000/4"
	72	dsl	400	Spencer 7000	440	9,000
WARREN						
Intl Petroleum Serv Co	5	dsl	475	Wilson 42	475	7,500

SOUTH DAKOTA

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
HARDING						
Bomac Drlg	32	dsl	760	Ideco H-40	760	8,500

TENNESSEE

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
CUMBERLAND						
B-J Inc	1	dsl	525	Ingersoll-Rand	525	3,000
	2	dsl	525	Ingersoll-Rand	525	3,000
	3	dsl	400	Drill-Tec	400	2,500
FENTRESS						
Miller Drlg Co Inc	10	dsl	525	Ingersoll-Rand	525	3,000
Norman Drlg Co	2	dsl	750	Ingersol	450	2,500
	1	dsl	750	Ingersol	450	2,500
HAWKINS						
Ray Resources	7	dsl	1000	Cardwell KB-500	600	8,000
JACKSON						
Miller Drlg Co Inc	9	dsl	525	Ingersoll-Rand	525	3,000
OVERTON						
Miller Drlg Co Inc	17	dsl	400	Spencer Harris	400	3,000
	19	dsl	400	Brewster N-4	400	6,000
	2	dsl	400	Ingersoll-Rand	400	3,000
SCOTT						
Miller Drlg Co Inc	16	dsl	525	Ingersoll-Rand	525	3,000
WARREN						
Miller Drlg Co Inc	20	dsl	400	Ideco H-37	400	6,000

TEXAS

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
UNDESIGNATED						
Adeco Drlg & Engr Co Ltd	18	dsl	700	OIME Helihoist 500-C	1370	23,000
Challenger Drlg	17	dsl	1900	Cabot 1000	1000	12,000
Chico Drlg Co Inc	1	dsl	550	Unit Rig U-15-A	1050	11,000
	2	dsl	550	Unit Rig U-15-A	1050	11,000
	4	dsl	700	Unit Rig U-15-A	1050	11,000
	5	dsl	350	Unit Rig U-10-A	428	6,000
Franklin Drlg Inc	3	dsl	500	Walker-Neer	500	7,000
	4		250	Brewster	250	3,200/3½"
Harris Well Serv Inc	26	dsl	632	Ideco H-44	750	10,000
Loffland Bros Co	117	dsl-elec	3200	M-CSCO U-1220-EBD	3000	28,000
	118	dsl-elec	3200	M-CSCO U-1220-EBD	3000	28,000
Marlin West	13	dsl-elec	2000	National 110		14,000
Mallard Well Serv Inc	11	dsl	800	Wilson Model 90	800	11,000
	12	dsl	800	Wilson Model 90	800	11,000
Murlynson Drlg Co	10	dsl	1000	M-CSCO U-15	600	10,000
P H D Drlg Co	1	btne	180	Wilson	145	4,000
	9	btne	145	Cardwell	145	3,500
Pete Murphy Drlg Co	1	dsl	800	Cardwell C-Horse	300	5,500
Robinson Bros Drlg Co	1	dsl	1000	Brewster N-75	1200	13,500
	3	dsl	1000	Wilson 75	900	9,000
	6	dsl	2200	National	1600	18,000
	7	dsl-elec	1750	National 80-UE	1500	16,000
	9	dsl-elec	1700	Ideco 1200	2000	22,000
Safari Drlg Corp	7	dsl	480	Emsco G-42	560	7,000/4"
Santa Fe Drlg Co	SFW-10	dsl-elec	2000	Emsco Electrohoist H-11	1800	24,000
	SFW-12	dsl-elec	2300	Emsco A-1100-E	1800	20,000
	SFW-14	dsl-elec	3200	Emsco C-3111	3000	30,000
	SFW-2	gas	1700	Bethlehem M-1013	2118	22,000
	SFW-3	dsl-elec	2900	Emsco A-1500-E	2000	30,000
	SFW-4	dsl-elec	2600	Emsco C-3111	3000	30,000

TEXAS (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
UNDESIGNATED (Contd)						
Santa Fe Drlg Co	SFW-5	gas	2200	Bethlehem B-1013	2118	22,000
	SFW-6	dsl-elec	2300	Emsco C-3111	3000	30,000
	SFW-7	dsl-elec	2600	Emsco C-3111	3000	30,000
	SFW-8	dsl-elec	2600	Emsco A-1500-E	2000	30,000
Syntek Drlg Corp	1	dsl	500	National T-12	500	5,000
	2	dsl	250	Wilson	250	4,200
Tucker Drlg Co Inc	2	dsl	750	Emsco GB-500	750	10,000
	5	dsl	750	Emsco GE-500	750	10,000
ANDERSON						
Cape Drlg Co	5	dsl	400	Walker-Neer Apache 950-40	425	6,000
Globe Drlg Co Inc	3	dsl	800	M-CSCO U-15	800	12,000
	5	dsl	850	OILWELL 76	1000	14,000
Lanford Drlg Co Inc	3	dsl	300	Joy	200	2,000
ANDREWS						
Cactus Drlg Co	54	dsl	502	Bethlehem S-55	454	6,500
	10	dsl	800	Bethlehem M-58	984	11,000
Cherokee Drlg & Dev Corp	5	dsl	900	BDW 450	531	7,000
Hillin Drlg Co Inc	4	dsl	900	National 50-A	900	11,000
	5	dsl	1200	National H-1200	1200	15,000
	8	dsl	500	Wilson 42 Mogul	400	5,000
Rod Ric Corp	10	dsl	670	Emsco G-500	600	8,500/4"
	3	dsl	670	Brewster N-45-M	600	9,000/4"
	6	dsl	450	Bethlehem S-45-E	450	7,000/4"
	7	dsl	770	Wagner Helihoist	900	10,000/4"
	8	dsl	670	Brewster N-45	600	8,000/4"
Tahoe Drlg Co	2	cat	600	Brewster N-4	458	7,000
Tom Brown Inc	2	dsl	375	National T-16	380	5,000
ATASCOSA						
Delta Drlg Co	87	dsl-scr	2000	Emsco D-3 Type II	2592	16,000
AUSTIN						
Drillers Inc	15	dsl	1000	OILWELL 66	850	12,000
Nicklos Drlg Co	77	dsl-elec	1600	Emsco C-1-II	1530	16,000
Penrod Drlg Co	22	dsl	2600	National 1320-N	1950	25,000
BAYLOR						
Lin-Mour Drlg Corp	3	gas	250	Unit 34	180	5,000
BRAZORIA						
Richards Operating Co	2	dsl	1500	Brewster N-75	1200	12,500
BEE						
Buzzini Drlg Co	9	dsl	3600	OILWELL M-2000	2400	25,000
BORDEN						
Cactus Drlg Corp	34	dsl	1290	National 75	1230	12,000
Hondo Drlg Co	9	dsl	1050	Brewster N-55	800	10,000
J W McCutchen Drlg Co	3	dsl	900	Wilson Atlas Roadair	900	10,000
Wes-Tex Drlg Co	4	dsl	650	Emsco G-500	650	1,000
BRAZORIA						
Bawden Drlg Inc	3	scr	2100	National 110-E	1500	16,000
Loffland Bros Co	322	dsl	1800	Gardner-Denver 800	2100	17,000
BRAZOS						
Atco Drlg Inc (Southern)	59	dsl	2000	Emsco 11-C	2000	18,000
Blocker Drlg Co	15	dsl	845	Cabot Series 900	950	10,000
	2	dsl	815	Cabot Series 750	650	7,500
	4	dsl	1200	National 55	1530	12,000
Helmerich & Payne Intl Drlg Co	41	dsl	1650	National 110	1650	22,000
BROOKS						
Delta Drlg Co	95	dsl-elec	3456	Emsco C-I Type II	2900	20,000
Flournoy Drlg Co	9	dsl	900	C-Emsco C-50	480	9,000/4"
Harkins & Co	7	dsl	1650	National 110	1650	16,000/5"
Rowan Drlg U S	7	dsl	3200	Emsco A-1500	2500	22,000
Willis Drlg Co Inc	5	dsl	800	M-CSCO U-15	800	10,000
	6	dsl	3000	Ideco	3000	25,000
BURLESON						
B D K Drlg Co	6	dsl	870	Skytop/Brewster 4610	950	10,000
Beta Drlg Inc	1	dsl	1260	National T-45	900	10,500/4"
	2	dsl	1260	National T-45	900	10,500
	3	dsl	1260	National T-45	900	10,500
	4	dsl	2000	National 100	1575	16,000
	5	dsl	1700	Brewster N-85	1560	14,000
	6	dsl	1260	National 55	1100	12,000
	7	dsl	2000	National 110	1650	18,000
	9	dsl	1000	Ideco H-1000	850	11,500
Bilbo Drlg Co	3	dsl	900	Cardwell KB-250	600	10,000/4"
Blocker Drlg Co	5	dsl	1300	Cabot Expl Rocket 900	950	10,000
	7	dsl	950	Cabot Series 900	600	10,500
Burris Drlg Co	105	dsl	1000	M-CSCO 36-A	1000	13,000
	106	dsl	1000	National 50-CA	1000	11,000
Crawford Drlg Co	5	dsl	600	M-CSCO U-15	800	10,000
Culver Drlg Co	12	dsl	1000	National 55	1000	11,000
	15	dsl-elec	1000	National 110	2000	16,000
	17	dsl	1000	OILWELL 66	670	9,500
D B Drlg Corp	7	dsl	1230	National 50-A	980	12,000
	12	dsl	1250	National 100	1250	15,000
Dual Drlg Co	1	dsl	1500	Wilson 75-P	900	12,500
	5	dsl	1500	Wilson Mogul	600	9,500

TEXAS (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
BURLESON (Contd)						
F-W Drlg Co	11	dsl	750	Brewster N-46	800	12,000
	8	dsl	600	Ideco H-725	725	10,500
	9	dsl	600	Ideco H-725	800	12,000
France Drlg Co	1	dsl	1600	Gardner-Denver 700	900	13,000
Hondo Drlg Co	2	dsl	1050	M-CSCO U-15-A	700	9,500
	8	dsl	1100	Brewster N-55	800	11,000
MGF Drlg Co-Midland	7	dsl	850	Brewster N-55	850	12,000
New & Hughes Drlg Co Inc	12	dsl	800	Wilson Giant	800	13,000
PRC Drlg Co	3	dsl	1250	Skytop/Brewster N-46	730	10,000
Richards-Armstrong Inc	7	dsl	1900	Cabot 1000	900	12,500
Southland Drlg Co Inc	7	dsl	650	Brewster N-55	600	10,000
Sterling Drlg Co	11	dsl	375	Ideco H-30	480	6,500
	12	dsl	1500	National 610	1100	14,000
	2	dsl	1500	National 610	1150	13,000
	3	dsl	800	National 50-CA	820	10,000
Tierra Drlg Corp	10	dsl	650	BDW-650	700	12,000
Tom Brown Inc	26	dsl	700	Gardner-Denver 500	700	11,000
BURNET						
McDonald & Son Drlg Co	2000	dsl		Failing	300	1,500
CALDWELL						
McConnell Drlg Co	1	dsl	300	National T-12	200	3,000
Nixon Drlg Co Inc	1	dsl	3306	Cardwell Cat-D	3306	4,000
	2	dsl	3306	Cardwell	3306	4,000
Rosamond Drlg Co	7	dsl	1450	Brewster N-10	1275	13,500
CALHOUN						
Alanco Drlg Co	1	dsl	500	Ideco H-40	500	8,500
B D K Drlg Co	4	dsl	1095	Brewster N-7	870	11,500
CALLAHAN						
Hack Drlg Co	3	dsl	350	Bethlehem S-45-E	350	7,000
Safari Drlg Corp	4	dsl	310	National T-20	270	6,000
CAMERON						
Blocker Drlg Co	9	dsl	1250	Ideco Hydrair H-1000	950	10,500
CARSON						
Service Drlg Co	11	dsl	420	M-CSCO U-34	420	6,000
CASS						
N & G Drlg Corp	3	dsl	1800	Skytop/Brewster N-46	900	13,000
Noble Drlg Corp	N-58	dsl	1550	National 55	700	12,000
CHAMBERS						
Big 6 Drlg Co	7	dsl	800	Ideco	600	10,000
Drillers Inc	5	dsl	900	Unit U-15-M	1200	11,000
Goldrus Drlg Co	18	dsl	1700	1000 Cabot	872	14,000
	20	dsl	1950	Cabot 1200	1054	15,000
Justiss-Mears Oil Co Inc	8	dsl	450	Emsco GA-500	900	11,000
Thunderbolt Drlg Inc	52	dsl	1700	National 55	1845	13,000
CHEROKEE						
Gibson Drlg Co	5	dsl	1030	Wilson 75-P	700	9,000
	8	dsl	529	Wilson 65	380	5,000
Schlensker Drlg Corp	6	gas	700	Unit U-15	800	10,000
Wheless Drlg Co	10	dsl	1800	National 100	1800	14,000
CLAY						
Burns L D Drlg Co	3	dsl	1220	Wilson 75	600	10,000
Crawford Drlg Co	2	dsl	600	M-CSCO U-15	800	10,000
Lin-Mour Drlg Corp	6	dsl	700	Wilson Giant	700	9,000
Megargel Drlg Co	14	dsl	750	Unit U-15 Treble	750	8,000
MND Drlg Corp	61	dsl	600	M-CSCO U-15	600	9,000
Oilwell Drlg Inc	4	dsl	476	Ideco 30	476	5,500
COKE						
Cam Drlg Inc	1	dsl	500	Bethlehem S-45-E	650	8,000
F-W Drlg Co	2	dsl	500	M-CSCO U-34	480	7,000
	6	dsl	420	National T-20	420	6,000/4"
Tom Brown Inc	14	gas	680	M-CSCO U-15	680	10,000
Wes-Tex Drlg Co	14	dsl	335	Brewster N-4	500	8,000
COLEMAN						
C & H Drlg Co	4	dsl		Ideco H-38-D	350	5,000
Safari Drlg Corp	6	dsl	300	Emsco U-34	370	6,000
Tri-J Drlg Co	3	dsl	500	Mayhew 3000	250	3,000
COLORADO						
Bilbo Drlg Co	1	dsl	500	Brewster N-4-A	500	8,000/4"
Doss Inc	1	dsl	353	Cooper T-6	425	7,000
Padre Drlg Co Inc	7	dsl	700	Skytop/Brewster H-14610	750	10,000
COMANCHE						
Bates Drlg Co Inc	6	dsl	1560	M-CSCO U-20	1040	16,000
J & M Drlg Co	1	dsl-gas	180	Hydril M-H	220	4,000
J & W Drlg Co	2	gas	180	Ideco 150	180	3,500
CONCHO						
Tucker Drlg Co Inc	7	dsl	375	Bethlehem 5-60	600	7,000
COOKE						
Felderhoff Bros Drlg Co	1	gas	285	Wilson Mogul	185	5,200
Parker Drlg Co	47	gas	2000	OIME 1500-P	2000	20,000

TEXAS (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
COTTLE						
Safari Drlg Corp	2	dsl	370	Cardwell L-350	370	7,000
CRANE						
Ard Drlg Co	4	dsl	900	M-CSCO U-15	900	12,000
Hillin Drlg Co Inc	6	dsl	500	Ideco H-25 Trailer Rig	360	5,000
John Drlg Co	8	gas	1050	Brewster N-75	700	10,000
Tom Brown Inc	1	dsl	350	M-CSCO U-15	500	7,000
	20	dsl	375	Ideco H-400	500	7,000
CROCKETT						
D B Drlg Corp	5	dsl	675	Brewster N-4	500	7,000
Delta Drlg Co	70	dsl	1000	Spencer 6000	440	9,000
	86	dsl	500	Spencer Port-A-Pig 7000	480	9,000
Texland Drlg Corp	2	dsl	750	Unit U-34	368	7,100
Tri-Service Drlg Co	4	gas	700	OILWELL 66	750	10,000
Tucker Drlg Co Inc	9	dsl	750	National	750	10,000
	6	dsl	750	Brewster N-75	750	12,000
Wes-Tex Drlg Co	17	dsl	335	Unit U-34	500	8,000
	2	dsl	650	Bethlehem S-45-E	650	10,000
	6	dsl	650	Bethlehem S-60	700	10,000
	8		335	Dsl	500	8,000
CULBERSON						
Parker Drlg Co	88	gas-elec	2000	National 130	3000	25,000
DAWSON						
Delta Drlg Co	98	dsl	1500	Wilson Giant Roadair	784	12,500
Gene Sledge Drlg Corp	4	dsl	600	U-15	800	10,000
Robinson Drlg of Texas Inc	6	dsl	950	Bethlehem M-58	1350	12,500
	4	dsl	750	National 50-A	900	12,500
Tri-Service Drlg Co	2	gas	750	OILWELL 66	700	10,000
	3	gas	700	OILWELL 76	750	13,000
	5	gas	1800	OILWELL 760	1400	16,000
Wes-Tex Drlg Co	9	dsl	700	National 50-A	700	10,000
Willbaos Drlg Inc	5	gas	1100	Bethlehem 450	1100	13,000
DEWITT						
B D K Drlg Co	1	dsl	700	Wilson Giant	580	8,500/4"
Bilbo Drlg Co	4	dsl	800	Cabot 900	900	11,500/4"
Buzzini Drlg Co	10	dsl	3600	OILWELL M-2000	2400	25,000
FWA Drlg Co Inc	16	dsl	600	Wilson Mogul 42	800	9,000
MGF Drlg Co	39	dsl	2450	National 125	2450	18,000
Penrod Drlg Co	107	dsl	1000	National 80-B	1760	15,000
Texas Drlg Co	5	dsl	1700	Cabot M-2550	1200	17,000
DIMMITT						
Cinco Drlg Co	7	dsl	960	M-CSCO J-34	425	6,500
Sundown Drlg Co	1	dsl	450	Emsco 16J-G8	400	5,500
DUVAL						
Delta Drlg Co	88		2600	Emsco C-1 Type 11-E	3456	18,000
Harkins & Co	4	dsl	1260	Brewster N-75	1260	12,500
	8	dsl	1800	National 110	1800	16,000
EASTLAND						
Sweetwater Drlg Co Inc	4	dsl	575	National T-20	475	6,500
Tierra Drlg Corp	2	dsl	650	Bethlehem S-45	650	7,000
ECTOR						
Brahaney Drlg Co Inc	7	gas	1400	OILWELL	1400	17,000
Cactus Drlg Co	53	dsl	502	Bethlehem S-55	875	7,500
	58	dsl	446	Bethlehem S-45-E	454	6,500
	60	dsl	502	Bethlehem S-45-E	454	6,500
	9	dsl	1200	Brewster N-75	1476	13,500
Kenai Drlg of Texas Inc	32	dsl	600	Emsco GA-500	800	
Pool Well Serv Co	100	dsl	300	Wilson Mogul 42 Double Drum	450	5,500
Rod Ric Corp	2	dsl	700	Bethlehem S-45-E	450	7,000/4"
	4	dsl	750	Ideco H-40	600	8,500/4"
Sharp Drlg Co Inc	47	dsl	1200	Bethlehem M-58	988	10,500
	64	dsl	2200	OILWELL 760	1836	18,000
	67	dsl	2600	M-CSCO U-914-C	2742	20,000
Tom Brown Inc	18	dsl	840	M-CSCO U-15-CA	840	10,000
Verna Drlg Co	11	dsl	500	M-CSCO U-15		11,500
	12	dsl	500	M-CSCO U-15	600	11,500
	13		600	Brewster N-4	400	6,500
	14	dsl	500	Wilson Mogul 42	550	7,000
	15	dsl	600	M-CSCO	600	11,500
	16	dsl	600	Brewster N-14	450	6,500
	17	dsl	550	M-CSCO U-15	650	11,500
	18	dsl-elec	1000	National 1320-E	2000	22,000
	19	dsl	550	M-CSCO U-15	600	11,500
	20	dsl	1000	Vernal Drlg	15000	13,000
ELLIS						
Triad Drlg Corp	4	dsl	900	Brewster N-7	900	11,000
ERATH						
I X Drlg Co Inc	7	dsl	476	Cardwell TR-350	416	7,500
FAYETTE						
B D K Drlg Co	8	dsl	960	Skytop/Brewster 4610	750	10,000
Cactus Drlg Corp	22	dsl	1650	National 100	2025	18,000
	23	dsl	1700	National 100	1894	17,000
	29	dsl	1500	National 80-B	1770	16,000
	7	dsl	1500	OILWELL 76	1770	14,000
FAYETTE (Contd)						
Delta Drlg Co	81	dsl	1300	Spencer 7000	480	9,000
Dixon Drlg Co	10	dsl	500	Bethlehem S-60	500	10,000
G-E Drlg Inc	6	dsl	900	National 50-CA	900	10,100
Sterling Drlg Co	10	dsl	1400	Brewster N-75	1100	13,000
	15	dsl	1400	Brewster N-75	1100	14,500
	5	dsl	1230	National 50-CA	820	11,000
Texland Drlg Corp	5	btne	920	Unit U-15	680	10,000
Tierra Drlg Corp	9	dsl	650	Unit U-15	700	10,000
Tom Brown Inc	10	dsl	750	M-CSCO U-15-CA	750	10,000
	25	dsl	700	Gardner-Denver 500	700	11,000
	9	dsl	1125	National 75-CA	1125	14,000
FISHER						
D B Drlg Corp	2	dsl	675	National T-32	460	7,500
Sojourner Drlg Corp	2	dsl		M-CSCO U-15	550	7,000
Tri-J Drlg Co	5	dsl	375	Wichtex R-6-A	350	5,000
FOARD						
Jack E Bearden Drlg Co	5	dsl	1200	Wilson Mogul	600	9,000
FORT BEND						
Atco Drlg Inc (Southern)	55	dsl	1800	National 80-UE	1800	15,000
Butler Drlg Corp	9	dsl	1250	Gardner-Denver 500	600	10,500
Cactus Drlg Corp	3	dsl	1500	National 80-B	1770	16,000
O'Connor & Young Drlg Co	101	dsl	1600	National 610	850	12,000
Southland Drlg Co	5	dsl	700	Brewster N-55	700	10,000
FRANKLIN						
United Drlg Co of Tyler	10	dsl	950	Unit U-34	470	8,000
FREESTONE						
Eagle Prod & Drlg Serv Inc	5	dsl-elec	3300	OILWELL E-2000	2000	25,000
France Drlg Co	2	dsl	1700	OILWELL 760	1700	17,000
	3		2400	OILWELL 3-760	2400	17,000
FWA Drlg Co	26	dsl	1350	Gardner-Denver 800-M	1350	15,000
	27	dsl	2000	Gardner-Denver 800-M	1350	15,000
	28	dsl	1500	Gardner-Denver 1100	1500	18,000
Maxwell Herring Drlg Corp	17	dsl	2500	Bethlehem	2400	20,000
O'Connor & Young Drlg Co	203	dsl	2600	Brewster NE-95	1750	18,000
Rosamond Drlg Co	6	dsl	1650	Emsco A-550	1275	14,000
United Drlg Co of Tyler	8	dsl	1600	Bethlehem M-58	1200	13,000
W B Hinton Drlg Co Inc	3	dsl	1700	National 80-B	1300	15,000
	7	dsl	1600	National 80-B	1650	15,000
FRIO						
Bearden Jack E Drlg Co	6	dsl	1200	Wilson 75	700	9,000
Cactus Drlg Co	55	dsl	502	Ideco H-35	670	6,500
	62	dsl	502	Ideco H-35	454	6,500
Cinco Drlg	2	dsl	890	National T-32	850	8,000
GAINES						
A N Norwood Inc	2	dsl	700	Brewster N-4	450	6,000
Cactus Drlg Co	52	dsl	550	Ideco H-35	454	6,500
	63	dsl	502	Brewster N-4	454	6,500
	66	dsl	502	Brewster N-4	454	6,000
Cherokee Drlg & Dev Corp	3	dsl	1150	Wilson 75	900	11,000
Landis Drlg Co	3	dsl	800	Brewster N-55	900	11,500
Moranco	5	dsl	750	M-CSCO U-15	750	11,000
Tom Brown Inc	3	gas	680	National 50	680	10,000
	7	dsl	1050	National 75	1050	14,000
GALVESTON						
Big 6 Drlg Co	2	dsl	800	Franks	600	10,000
Butler Drlg Co	2	dsl	1450	Brewster N-75	1100	12,500
	4	gas	1600	Gardner-Denver 1100	1600	18,000
Eagle Prod & Drlg Serv Inc	4	dsl-elec	2700	OILWELL E-760	1000	16,000
Inland Well Serv Inc	8	dsl	400	Ideco H-35	350	6,000
Nicklos Drlg Co	78	dsl	1400	National 80-B	1080	14,000
GARZA						
Brahaney Drlg Co Inc	3	gas	900	National 75-CA	900	12,000
J W McCutchen Drlg Co	4	dsl	900	Wilson 90	900	12,500
Moran Drlg Corp	55	dsl	600	Wilson Super 38	350	5,000
Robinson Drlg of Texas Inc	5	dsl	750	M-CSCO U-15	900	9,500
Wes-Tex Drlg Co	11	dsl	450	Bethlehem S-55	700	10,000
GLASSCOCK						
Brahaney Drlg Co Inc	1	gas	900	National 75-CA	900	12,000
Kenai Drlg of Texas Inc	16	dsl	700	Emsco GA-500	780	11,000/4"
GOLIAD						
B D K Drlg Co	9	dsl	1480	Brewster N-75	1000	12,000
Blocker Drlg Co	17	dsl	825	Spencer Harris	750	6,000
Corpus Christi Drlg Co	6	dsl	300	Skytop/Brewster 550	450	6,000
Padre Drlg Co Inc	8	dsl	700	Skytop/Brewster H-14610	750	10,000
PRC Drlg Co	4	dsl	758	Cabot Franks 900	900	10,000/4"
GONZALES						
Blocker Drlg Co	3	dsl	1475	Cabot Expl Rocket 111 1000	950	12,000

TEXAS (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
GONZALES (Contd)						
Cinco Drlg	1	dsl	900	M-CSCO U-15	780	11,000
	4	dsl	1005	Brewster N-45	780	8,500
	6	dsl	1080	M-CSCO U-15	780	11,000
O'Connor & Young Drlg Co	102	dsl	1600	National 610	850	12,000
South Texas Drlg Co	5	dsl	500	Brewster N-45	500	8,000
South Texas Drlg Co	6	dsl	500	Skytop/Brewster N-46	800	10,000
Southland Drlg Co Inc	1	dsl	700	Emsco GB-500	700	10,000
Texas Drlg Co	6	dsl	1200	Cabot M-25	950	11,000
Tom Brown Inc	6	dsl	900	National 75-CA	900	12,500
GRAY						
Baker & Taylor Drlg Co	11	dsl	1140	Emsco GCA-500	1140	12,000
GRAYSON						
Big Chief Drlg Co	30	gas	2000	Ideco 1050	1515	15,000
E W Moran Drlg Co	21	dsl	1600	Wilson 120	1000	15,000
	14	dsl	1600	Wilson 150	1000	15,000
	3	dsl	1100	Wilson Giant	800	12,000
	16	dsl	750	Spencer 7000	500	8,000
Guffey-Schlensker Drlg Corp	1	dsl	700	Unit U-36-A	933	11,000
Jones Drlg Corp	10	gas	1000	National 100	1000	18,000
Schlensker Drlg Corp	4	gas	700	Unit U-15	800	10,000
T R G Drlg Corp	5	dsl	1400	Wilson Atlas	1305	13,000
GREGG						
Rainbow Drlg Co	4	dsl	1300	Cabot 900	950	14,000
GRIMES						
Matagorda Drlg Co	10	dsl	1600	Emsco D-2	1000	12,000
Nicklos Drlg Co	76	dsl-elec	2600	National 1320-UE	1800	25,000
HALL						
Jack E Bearden Drlg Co	1	dsl	1200	Wilson Mogul 42	700	9,000
HANSFORD						
Baker & Taylor Drlg Co	9	dsl	870	M-CSCO U-15	870	11,000
HARDEMAN						
Crawford Drlg Co	4	dsl	600	M-CSCO U-15	800	9,500
Jack E Bearden Drlg Co	8	dsl	1200	Wilson 75	700	10,000/4"
Luke Grace Drlg Co Inc	1	gas-btne	500	M-CSCO U-15	750	10,500
E W Moran Drlg	18	dsl	800	Spencer 7000	500	800
HARDIN						
Big 6 Drlg Co	6	dsl	800	Cabot	950	12,000
Faith Drlg Co	2	dsl	1500	National 55	1300	12,000
Loffland Bros Co	110	dsl	2160	Brewster N-12	2400	22,500
Richards Operating Co	4	dsl	1400	OILWELL 66	1200	10,500
Stone M L Drlg Co	2	gas	100	Wilson Jr	100	2,000
HARRIS						
Big 6 Drlg Co	3	dsl	750	Franks	600	11,000
Cactus Drlg Corp	25	dsl	1100	Ideco 7-11	1400	12,500
Goldrus Drlg Co	19	dsl	1110	Cabot 750	560	10,000/4"
	23	dsl	870	Franks 900	680	12,000
Harkins & Co	3	dsl	1260	Brewster N-75-A	1260	12,500
Matagorda Drlg Co	11	dsl	2600	National 110	2000	18,000
San Jacinto Drlg Co	2	gas-dsl	1250	Cardwell	600	9,000
Southland Drlg Co Inc	11	dsl	2300	M-CSCO A-1500	2300	24,000
HARRISON						
Gibson Drlg Co	4	dsl	506	Wilson Mogul Model 65	398	5,000
	6	dsl	506	Wilson Mogul 42	318	5,000
Noble Drlg Corp	OW-77	dsl	1400	OILWELL 760	1000	13,000
Pool Well Serv Co	122	dsl	375	M-CSCO U-34	350	5,500
Sawyer Drlg & Serv Inc	3	dsl	1100	Brewster N-7	1100	12,000
HARVARD						
Justiss-Mears Oil Co Inc	33	dsl	1000	OILWELL 96	1400	17,000
HASKELL						
F-W Drlg Co	4	dsl	500	M-CSCO U-34	480	7,000/4"
Sojourner Drlg Corp	1	dsl		M-CSCO U-15	550	7,000
HEMPHILL						
Baker & Taylor Drlg Co	2	dsl	1400	M-CSCO U-20	1400	20,000
	8	dsl	870	M-CSCO U-15	870	11,000
Drillers Inc	24	dsl	700	Brewster N-55	700	11,000
	29	dsl	1200	Ideco 700-E	1000	14,000
E W Moran Drlg Co Inc	2	dsl	1500	Gardner-Denver 700	1000	13,500
	4	dsl	1300	Wilson 120	1000	15,000
Helmerich & Payne Intl Drlg Co	46	dsl	1200	Emsco GB-800	1200	13,500
	49	dsl	1600	National 110	1600	20,000
Hickman Drlg Co	2	dsl	1150	Wilson Giant	800	12,000
Leonard Hudson Drlg Co Inc	2	dsl	500	M-CSCO U-15	900	9,000
Moran Drlg Corp	37	dsl	1000	National 610	1000	12,000
Parker Drlg Co	142	dsl	3000	National 1320-E	3000	25,000
	149	gas	1200	National 75	1200	16,000
	164	dsl	1650	OIME SL-1500-P	1650	20,000
	178	dsl	2200	OIME SL-1500-P	2200	25,000
Sharp Drlg Co Inc	39	dsl	2970	OILWELL M-2000	2742	30,000
Trigg Drlg Co Inc	7	dsl	1200	Brewster N-95	1600	20,000
Unit Drlg & Expl Co	6	dsl	950	Unit U-15	882	11,000
Zenith Drlg Corp Inc	2	dsl	600	Emsco GB-350	600	8,500
	5	dsl	1100	Emsco M-58	1100	15,000

TEXAS (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
HENDERSON						
Delta Drlg Co	44	dsl	1700	Brewster N-95	1560	16,000
E W Moran Drlg Co Inc	6	dsl	900	Bethlehem S-55	750	10,000
Lohmann-Johnson Drlg Co Inc	17	gas	800	M-CSCO U-15 S/N 356	600	10,000
Maxwell Herring Drlg Corp	12	dsl	1500	Wilson 150-A	2500	15,000
United Drlg Co of Tyler	5	dsl	1200	Skytop/Brewster N-75	1200	15,000
W B Hinton Drlg Co Inc	6	dsl	1600	National 80-B	1650	15,000
HIDALGO						
Blocker Drlg Co	1	dsl	815	Cabot Series 750	650	9,500
	14	dsl	2500	National 110	2730	20,000
Corpus Christi Drlg Co	4	dsl	300	Wilson Super 38	250	5,450/3½"
Flournoy Drlg Co	7	dsl	1775	OILWELL 76	1176	13,500
Harkins & Co	1	dsl	1080	Skytop/Brewster N-75	1080	12,500
	13	dsl	800	Cabot 1000	1000	12,000
Marlin Drlg Co Inc	8	dsl-elec	1600	National 80-B	1500	12,000
Resource Drlg Inc	16	dsl	1560	National 80-B	1835	14,000
	2	dsl	1560	National 80-B	1835	14,000
Willis Drlg Co Inc	2	dsl	1000	Bethlehem B-Line MC-450	1000	12,000
	4	dsl	1200	Brewster N-85	1200	14,000
HOCKLEY						
B B L Drlg Corp	2	dsl	500	Wilson Mogul 42	760	6,500
D B Drlg Corp	1	dsl	660	Brewster N-4	500	7,500
Norton Drlg Co	1	dsl	450	Wilson 65-P	900	10,000
Sitton Drlg Co	5	dsl	650	Wilson 75-P	900	11,500
	6	dsl	450	Wilson 75-P	900	10,000
Texland Drlg Co	4	dsl	1060	Unit U-15	720	9,000
V[illegible]na Drlg Co	10	dsl	700	M-CSCO U-36-A	600	12,000
	1	dsl	500	Brewster N-55	600	12,000
	2	dsl	550	Brewster N-55	600	12,500
	3	dsl	300	Brewster N-45	450	6,500
	4	dsl	500	Brewster N-4	400	6,500
	5	dsl	500	Wilson Mogul	400	6,500
	6	dsl	550	Brewster N-55	600	9,000
	7	dsl	700	Wilson Giant Roadair	600	9,000
HOPKINS						
Maxwell Herring Drlg Corp	18	dsl	3250	Gardner-Denver	2700	23,000
HOUSTON						
Delta Drlg Co	5	dsl	2000	National 100	1560	16,000
	54	dsl	2000	National 80-B	1560	14,000
Guffey-Schlensker Drlg Corp	3	dsl	1270	National 75-CA	1270	14,000
Justiss-Mears Oil Co Inc	32	gas-btne	700	Bethlehem 450	900	12,000
Loffland Bros Co	112	dsl-elec	3300	M-CSCO U-1220-EB	2200	30,000
Noble Drlg Corp	23	dsl	2600	National 1320-DE	2000	22,000
HOWARD						
D B Drlg Corp	8	dsl	830	Bethlehem S-55	700	10,000
Fiscus Drlg Inc	1	dsl	200	Wilson Super 36-5	200	3,200/4"
Gene Sledge Drlg Corp	3	gas	650	National 50-A	850	12,500
MGF Drlg Co-Midland	2	dsl	800	M-CSCO U-15	800	10,000
Moran Drlg Corp	53	dsl	600	Wilson Super 38	350	5,000
	57	dsl	600	Wilson Super 38	350	5,000
Riley Drlg	2	dsl	300	National	300	4,500
Robinson Drlg of Texas Inc	3	dsl	750	M-CSCO U-15	900	10,000
HUNT						
Rotary Drlg Inc	2	dsl	850	Spencer Harris 7000	700	10,600/4"
HUTCHINSON						
Service Drlg Co	1	dsl	320	M-CSCO U-34	310	4,500
IRION						
Frank Caraway Drlg Co	2	dsl	1300	Emsco GB-350	750	8,500
FWA Drlg Co Inc	12	dsl	1000	Wilson Giant	800	10,000
Sweetwater Drlg Co Inc	5	dsl	950	M-CSCO U-15	950	11,500
Texland Drlg Corp	1	dsl	675	Brewster N-4	420	7,100
Transcontinental Drlg Co Inc	34	dsl	675	Bethlehem S-55	650	8,000
Tucker Drlg Co Inc	1	dsl	750	Brewster N-55	750	10,000
	8	dsl	550	Ideco H-40	550	9,000
Wes-Tex Drlg Co	7	dsl	335	Brewster N-4	450	8,000
JACK						
Burns L D Drlg Co	2	dsl	1220	Wilson 75	600	10,000
Felderhoff Bros Drlg Co	2	dsl	800	Giant	600	9,000
Lin-Mour Drlg Corp	8	gas	400	Emsco G-42	400	6,500
MND Drlg Corp	57	dsl	500	National Ideal 50	500	6,000
Texland Drlg Corp	6	dsl	600	National T-12	380	6,000
Tierra Drlg Corp	4	dsl	500	National T-12	500	6,000
JACKSON						
FWA Drlg Co inc	18	dsl	500	Wilson Mogul 42	500	6,500
G-E Drlg Inc	8	dsl	500	Ideco H-400-B	500	8,000
JASPER						
Helmerich & Payne Intl Drlg Co	83	scr	2000	OILWELL E-2000	1400	30,000

TEXAS (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
JEFFERSON						
Atco Drlg Inc (Southern)	7	dsl	800	Ideco Super 750	800	10,500
Gopher Drlg Co	7	dsl	150	Franks	100	4,000
Loffland Bros Co	77	dsl	1450	National 100	1575	17,000
O'Connor & Young Drlg Co	202	dsl-elec	2600	Brewster NE-95	1750	18,000
Resource Drlg Inc	15	dsl	1560	National 80-B	1835	14,000
Richards Operating Co	3	dsl	1800	Brewster N-75	1200	12,500
JIM WELLS						
Corpus Christi Drlg Co	5	dsl	300	Wilson Super 38	250	6,000/3½"
Dixilyn Field Drlg Co	4	dsl	2600	National 1625-M	3105	30,000
	1	dsl	1300	Brewster N-75	1000	12,000
	10	dsl	1295	National 55	1040	12,000
	19	dsl	1925	National 130	2331	20,000
	2	dsl	1300	National 610	1040	12,000
	20	dsl	1500	Brewster N-75	1040	12,000
	3	dsl	1300	Brewster N-75	1020	12,000
	5	dsl	1850	National 110	1638	18,000
	6	dsl	2000	Unit 914-B	1536	20,000
	7	dsl	850	National T-32	700	8,500
	9	dsl	2650	National 130	2331	25,000
	11	dsl	2600	National 110-M	2331	18,000
	12	dsl	2600	National 110-M	2331	18,000
	23	dsl	2800	OILWELL 860	2331	18,000
	24	dsl	2500	OILWELL 860	2331	18,000
	8	dsl	1950	National 110	1638	16,000
Field Drlg Co	18	dsl	1925	M-CSCO U-914-C	2331	20,000
T & T Drlg Co Inc	4	dsl	450	Cardwell	250	6,500
Pearl Expl Inc	1	dsl	800	Model 65	400	7,000
Torreon Drlg Co Inc	R-3	dsl	300	Ideco H-30	250	6,500
JONES						
F-W Drlg Co	5	dsl	420	Ideco H-25	375	5,500/4"
Mesa Drlg Co Inc	1	dsl	300	Ideco	400	7,000
Safari Drlg Corp	3	dsl	340	Brewster N-4	300	7,000
Tri-J Drlg Co	1	dsl	325	Wichtex R-5	250	3,000
KARNES						
Crawford Drlg Co	7	dsl	600	M-CSCO U-15	800	10,000
Harkins & Co	2	dsl	1500	Brewster N-95	1500	14,000
T & T Drlg Co Inc	1	dsl	1200	Cardwell KB-250	550	9,000
Southland Drlg Co Inc	10	dsl	1800	Bethlehem 810	1600	17,000
KAUFMAN						
Cape Drlg Co	2	dsl	600	Wilson 42 Mogul	500	8,000
Ironwood Drlg Inc	1	dsl	750	Emsco GC-350	750	9,000
Maxwell Herring Drlg Corp	2	dsl	1034	Bethlehem M-810	926	12,000
KENEDY						
Fournoy Drlg Co	10		1250	Skytop/Brewster N-46	820	12,500
Harkins & Co	10	dsl	1620	Emsco B-1013	1620	16,000
KING						
Herb Expl Co	1	btne		Failing 1500		1,500/2⅞"
Jack E Bearden Drlg Co	4	dsl	600	Wilson Mogul	400	7,000/4"
Was-Mor Drlg Inc	5	gas-btne	465	M-CSCO U-15	290	7,500
KLEBERG						
Flournoy Drlg Co	5	dsl	1200	Franks Rocket 1000	950	12,000
Pool Well Serv Co	114	dsl	350	Wilson Mogul 42 Double Drum	500	5,500
Southland Drlg Co Inc	8	dsl	700	Emsco GB-350	700	8,000
KNOX						
Bearden Jack E Drlg Co	7	dsl	1200	Wilson Mogul	400	7,000/4"
GCO Drlg Co	1	dsl	640	National T-20	450	7,500
Sojourner Drlg Corp	3	dsl		M-CSCO U-15	550	7,000
LA SALLE						
Blocker Drlg Co	16	dsl	1080	Cabot Explorer III 1000 Series	950	12,000
Cactus Drlg Co	61	dsl	502	National T-20	460	6,000
Rhodes & Hicks Drlg Co	5	dsl	1000	Franks Cabot 700	750	7,500
	5	dsl	1000	Franks Cabot 700	500	7,000
LAMB						
Norton Drlg Co	7	dsl	450	Wilson 65	600	8,500
LAVACA						
Billings Oil Serv Inc	2	dsl	500	Skytop/Brewster H-4210	400	7,500
Buzzini Drlg Co	8	dsl	3600	OILWELL M-2000	2400	25,000
FWA Drlg Co Inc	29	dsl	1800	National 110	1800	18,000
Howell Drlg Inc	1	dsl	856	Cabot 900	900	11,000
	2	dsl	1300	Cabot 1200	1130	15,000
Loffland Bros Co	107	dsl	2160	Brewster N-12	2400	19,500
Richards-Armstrong Inc	6	dsl	2500	OILWELL 860	2400	18,000
LEE						
Atco Drlg Inc (Southern)	16	dsl	1126	Ideco H-525	800	8,500
	21	dsl	1080	Gardner-Denver 500	580	9,500
Butler Drlg Corp	7	gas	950	Brewster N-45	500	10,000
Cape Drlg Co	6	dsl	1000	Wilson Super Giant	800	11,500
Delta Drlg Co	80	dsl	1300	Spencer 7000	480	9,000
E W Moran Drlg Co	19	dsl	1200	Wilson 75	900	10,500
Economy Drlg Co	2	dsl	700	Bethlehem	800	8,000
MGF Drlg Co-Midland	6	dsl	750	National T-32	750	9,000
	8	dsl	800	M-CSCO Rig U-15	800	10,000
Resource Drlg Inc	18	dsl	1040	National 610	1220	12,000
LEE (Contd)						
Southland Drlg Co Inc	6	dsl	600	Howard Turner 1887-600-TD	600	8,500
	9	dsl	600	Brewster N-45	600	7,500
Texas Drlg Co	4	dsl	1300	National 50-CA	1455	12,500
Tom Brown Inc	13	dsl	750	M-CSCO U-15	750	10,000
LEON						
Cape Drlg Co	1	dsl	650	Wilson 42 Mogul	500	8,500
Cliffs Drlg Co	29	dsl	1300	National 110	1300	20,000
Delta Drlg Co	6	dsl	2300	Emsco C-1	2592	22,000
Nicklos Drlg Co	28	dsl-elec	3000	Emsco Electrohoist III	3600	25,000
O'Connor & Young Drlg Co	151	dsl-elec	2000	Brewster NE-95	1750	16,000
W B Hinton Drlg Co Inc	4	dsl	800	Spencer 7000	400	8,300
LIBERTY						
Butler Drlg Corp	5	dsl	1650	Brewster N-95	1650	18,000
	6	dsl	1100	Gardner-Denver 500	600	10,500
LIMESTONE						
Delta Drlg Co	21	dsl	2300	Gardner-Denver 1100	1560	17,000
FWA Drlg Co Inc	20	dsl	1600	Wilson Super Atlas	1000	13,000
Justin-Mears Oil Co	36	dsl	1000	1013	1200	16,000
MGF Drlg Co	38	dsl	1800	Continental Emsco Model C-1	1800	17,000
O'Neal Drlg Co	14	dsl	15000	National 80-B	1500	15,000
LIPSCOMB						
Baker & Taylor Drlg Co	10	dsl	870	M-CSCO U-15	870	11,000
E W Moran Drlg Co Inc	7	dsl	1200	Gardner-Denver 700	800	12,500
Leonard Hudson Drlg Co Inc	1	dsl	550	M-CSCO U-15	900	11,000
	3	dsl	500	M-CSCO U-15	900	11,000
	5	dsl	500	M-CSCO U-15	900	11,000
	6	dsl	550	Brewster N-7	900	11,500
	7	dsl	550	M-CSCO U-15	900	11,500
Mercury Drlg Co	11	dsl	750	Emsco U-15	900	9,000
Midco Drlg Inc	2		750	Unit U-15	750	12,500
Moran Drlg Corp	64	dsl	1000	Emsco GA-500	750	10,000
Search Drlg Co	2	dsl	950	Ideco H-725-C	950	9,500
Service Drlg Co	12	dsl	800	Emsco D-2	900	12,000
Sharp Drlg Co Inc	38	dsl	1450	Bethlehem M-58	988	12,000
Unit Drlg & Expl Co	12	dsl	1350	Gardner-Denver 1500	2000	25,000
	8	dsl	700	National 55	1588	14,000
	16	dsl	1000	Emsco WS-18	950	12,000
LIVE OAK						
Billings Oil Serv Inc	4	dsl	500	Skytop/Brewster H-4210	400	7,500
Blocker Drlg Co	8	dsl	1900	Cabot Expl 111 1200	1165	14,000
Flournoy Drlg Co	8	dsl	800	Ideco BIR-800	950	10,000
FWA Drlg Co Inc	24	dsl	1350	Wilson Mogul 42	800	11,000
Loffland Bros Co	88	dsl-elec	2160	M-CSCO U-712	2400	18,000
New & Hughes Drlg Co Inc	11	dsl	900	Emsco GA-500	600	11,500
Resource Drlg Inc	14	dsl	2330	National 110	2740	18,000
	19-RD	dsl	1040	National 610	1220	12,000
	7	dsl	1560	National 80-B	1835	14,000
South Texas Drlg Co	4	dsl	500	Skytop/Brewster 1046	750	10,000
LOVING						
Ard Drlg Co	8	dsl	1900	Emsco 800-GB	1800	16,000
Hillin Drlg Co Inc	3	dsl	500	BDW 450-T	575	7,500
MGF Drlg Co-Midland	202	dsl	1600	2000	2000	30,000
	201	dsl	1600	National U-E	2000	30,000
Parker Drlg Co	198	gas	1600	OIME 1500	1600	22,000
	58	dsl	1650	National 100-M	1650	20,000
	74	gas	1800	National 100-M	1800	22,000
Rowan Drlg U S	18	dsl	3200	Emsco A-1500	2500	30,000
	30	dsl	2600	Emsco A-1500	2400	22,000
Sharp Drlg Co Inc	43	dsl	2940	OILWELL M-2000	2742	30,000
	55	dsl	2970	Gardner-Denver 2100	2742	30,000
	61	dsl	2600	M-CSCO U-914-C	2742	20,000
	66	dsl-elec	2600	M-CSCO U-1220-E	2742	30,000
LUBBOCK						
D B Drlg Corp	3	dsl	675	Brewster N-4	420	7,000
Megargel Drlg Co	4	dsl	350	S-45-B Bethlehem Double Jacknife	275	5,370
Norton Drlg Co	5	dsl	500	Wilson 75	900	10,500
Sitton Drlg Co	1	dsl	450	Wilson 600	525	6,500
LYNN						
Tom Brown Inc	24	dsl	1100	Gardner-Denver 700	1100	14,500
MADISON						
Rotary Drlg Inc	4	dsl	850	Spencer-Harris 7000	700	10,600/4"
Tom Brown Inc	8	dsl	750	National 50-CA	750	10,000
MARION						
Maxwell Herring Drlg Corp	14	dsl	1000	Wilson Giant	900	12,000

TEXAS (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
MARION						
Maxwell Herring Drlg Corp	14	dsl	1000	Wilson Giant	900	12,000
MARTIN						
Cactus Drlg Corp	24	dsl	1000	National 75	1476	13,000
	4	dsl	1200	National 55	1400	14,000
FWA Drlg Co Inc	11	dsl	1000	Wilson Giant	800	10,000
	2	dsl	1200	Wilson Super Giant	1050	13,000
Holliday Drlg Inc	2	dsl	700	OILWELL 76	1200	14,000
Kenai Drlg of Texas Inc	20	dsl	410	Emsco GB-250	400	6,000/4"
	20	dsl	500	Emsco GB-250	400	6,500
MGF Drlg Co-Midland	10	dsl	750	Bethlehem M-58	750	12,000
	11	dsl	800	Bethlehem M-58	800	12,500
	9	dsl	850	Emsco GC-500	850	14,000
Sterling Drlg Co	17	dsl	1500	Brewster N-75	1230	14,000
Tahoe Drlg Co	1	cat	500	National 50-A	900	11,500
Tom Brown Inc	5	dsl	750	National 50	750	10,500
Wes-Tex Drlg Co	3	dsl	700	National 50-A	700	10,000
MATAGORDA						
Delta Drlg Co	17	dsl-elec	2300	Emsco C-1	2592	16,000
FWA Co Inc	25	dsl	1350	Wilson 120	1350	16,000
Nicklos Drlg Co	23	dsl	1850	National 110	1755	18,000
O'Connor & Young Drlg Co	201	dsl-elec	2600	Brewster NE-95	1750	18,000
Richards Operating Co	8	dsl	2500	OILWELL 860	2400	18,000
Southland Drlg Co Inc	3	dsl	1300	Brewster N-75	750	11,000
T-L Drlg Co Inc	2	dsl	2000	Brewster N-75	1200	14,000
Welsh Drlg Serv & Inc	14	gas	1750	National 110-M	2550	16,000
MAVERICK						
Moran Drlg Corp	52	dsl	350	Wilson Super 38	350	5,000
	56	dsl	600	Wilson Super 38	350	5,000
MCMULLEN						
Atco Drlg Inc (Southern)	19	dsl	800	OILWELL 66	800	10,000
Delta Drlg Co	20	dsl-elec	2600	Emsco C-2	3456	20,000
Flournoy Drlg Co	4	dsl	900	Franks Explorer III	600	9,000/4"
Harkins & Co	9	dsl	2100	Emsco A-1100	2100	18,000/5"
MIDLAND						
FWA Drlg Co Inc	1	dsl	1000	Wilson Giant	800	10,000
Santa Fe Drlg Co (Western)	5	gas	2600	Bethlehem B-1013	2118	22,000
MITCHELL						
D B Drlg Corp	6	dsl	905	Brewster N-45	600	9,000
Riley Drlg Co	4	dsl	300	Franks	300	4,500
Wes-Tex Drlg Co	12	dsl	335	Brewster N-4	500	8,000
MONTAGUE						
Burns L D Drlg Co	1	dsl	1220	Bethlehem S-55	600	10,000
Lin-Mour Drlg Corp	21	btne-gas	650	Unit 15	650	7,500
MOORE						
Service Drlg Co	6	dsl	320	M-CSCO U-34	310	5,000
NACOGDOCHES						
Gibson Drlg Co	10	dsl	1200	Emsco D-2	1200	12,000
Globe Drlg Co Inc	7	dsl	1350	Gardner-Denver 1100	1500	20,000
Thunderbolt Drlg Inc	50	dsl	1750	Cabot 1200	1300	13,500
W B Hinton Drlg Co Inc	8	dsl	1300	Spencer 7000	400	9,500/4"
NAVARRO						
Atco Drlg Inc (Southern)	53	dsl	1200	National 610-UE	1200	12,000
Delta Drlg Co	64	dsl	1200	Emsco D-2	784	10,500
Schlensker Drlg Corp	3	dsl	700	OILWELL 760	1500	14,000
NEWTON						
Delta Drlg Co	90	dsl-elec	2592	Emsco D-3 Type II	2592	16,000
NOLAN						
F-W Drlg	7	dsl	500	Brewster N-4	450	7,500
GCO Drlg Co	2	dsl	640	Emsco 250-T	450	7,000
Mesa Drlg Co Inc	2	dsl	300	Weiss W-45	500	
NUECES						
Alanco Drlg Co	2	dsl	500	Ideco H-40	600	9,500
Blocker Drlg Co	6	dsl	1300	Cabot HT Explorer Rocket 900	950	10,000
Delta Drlg Co	94	dsl-scr	2000	Emsco D-3	2592	16,000
F-W Drlg Co	10	dsl	1000	Ideco H-1200	1000	16,000
Flournoy Drlg Co	2	dsl	800	Emsco C-50	480	9,000/4"
	3	dsl	1560	M-CSCO U-40	1040	12,000
Harkins & Co	14	dsl	750	Cabot Series 900	900	11,000/4"
	6	dsl	1260	Brewster N-75-A	1260	12,500
Matagorda Drlg Co	12	dsl	2000	National 80-B	1500	15,000
	14	dsl	2600	National 110	2000	18,000
	15	dsl	2000	National 80-B	1500	15,000
PRC Drlg Co	5	dsl	1198	Gardner-Denver 700-M	800	13,000
	7	dsl	1700	Gardner-Denver 800-M	1040	16,000
OCHILTREE						
Baker & Taylor Drlg Co	12	dsl	870	M-CSCO U-15	870	11,000
Midco Drlg Inc	1	dsl	680	Unit U-15	680	9,000
Service Drlg Co	4	dsl	500	M-CSCO U-15	800	9,200
Zenith Drlg Corp Inc	1	dsl	600	Emsco GB-350	600	8,500
	4	dsl	1100	Unit U-15	1100	12,000
OLDHAM						
Baker & Taylor Drlg Co	1	dsl	870	A-CSCO U-15	870	10,000
PALO PINTO						
Lin-Mour Drlg Corp	4	gas	400	Wilson Mogul	310	5,000
Megargel Drlg Co	6	dsl	350	Bethlehem S-45-B	275	6,000
Oilwell Drlg Inc	2	dsl	476	Bethlehem S-50	476	5,500
PANOLA						
Burris Drlg Co	104	dsl	800	Emsco 350	500	10,000
	107	dsl	1000	Brewster N-55	750	10,000
Don Lester Drlg Co Inc	6	dsl	2000	Wilson 150-A	1800	16,000
Delta Drlg Co	40	dsl	1500	Emsco D-2	784	11,000
	74	dsl	1100	Spencer 7000	480	9,000/4"
Gibson Drlg Co	2	dsl	526	Wilson Mogul 65	398	5,000
	9	dsl	1030	Wilson Mogul 75-P	700	9,000
Murco Drlg Corp	38	dsl-elec	1700	OILWELL 660-E	700	12,000
Paramount Drlg Co Inc	11	dsl	1700	Bethlehem 450	1200	12,500
Transcontinental Drlg Co Inc	23	dsl	1000	Brewster N-75	1000	12,000
	27	dsl	750	Brewster N-7	750	11,500
	35	dsl	1200	Gardner-Denver 800-M	1200	16,000
Wheless Drlg Co	4	dsl	1800	Emsco J-1100	1800	16,000
PARKER						
Crawford Drlg Co	3	dsl	350	Wilson Giant	350	6,500
D B Drlg Corp	4	dsl	675	National T-12	460	6,000
MND Drlg Corp	1359	gas	450	Emsco 350	450	6,000
Wes-Mor Drlg Inc	7	dsl	680	M-CSCO U-34	680	7,500
Wes-Tex Drlg Co	16	dsl	335	Brewster N-4	500	8,000
PECOS						
A N Norwood Inc	1	dsl	450	Wilson Super 38	350	5,500
	4	dsl	600	National T-20	450	6,000
Cactus Drlg Corp	1	dsl	1700	National 110	2145	18,000
Delta Drlg Co	36	dsl	2300	Emsco C-2 Type III	2331	23,000
Dual Drlg Co	19	dsl	2000	OILWELL 760	1000	16,000
FWA Drlg Co Inc	14	dsl	800	Wilson Mogul	600	7,000
Hillin Drlg Co Inc	9	dsl	600	Ideco H-40	600	7,500
Holliday Drlg Inc	1	dsl	700	Gardner-Denver 700	1000	12,000
Kenai Drlg of Texas Inc	28	dsl	900	Brewster N-7	1000	14,000
	28	dsl	750	Brewster N-7	1200	10,000
Loffland Bros Co	37	dsl-elec	2300	M-CSCO U-914-B	2000	18,000
Parker Drlg Co	121	dsl-elec	2700	Ideco E-3000	2700	30,000
	16	gas	1200	OILWELL 76	1200	16,000
	184	gas-elec	2750	National 1625-DE	2750	30,000
	39	gas	1700	OIME Hercules 2500-M	2000	23,000
	84	gas	750	National 75	750	10,000
	87	gas	2000	Ideco 2000	2000	25,000
	90	gas	2000	National 130	2000	25,000
Penrod Drlg Co	25	dsl	2600	Emsco C-2	1950	25,000
Rod Ric Corp	11	dsl	450	National T-20	440	5,000/4"
Santa Fe Drlg Co (Western)	14	dsl	3200	Emsco C-3-E	2000	30,000
	10	dsl-elec	2000	Emsco Electrohoist II	1800	22,000
	3	dsl-elec	2600	Emsco A-1500-E	2700	30,000
	7	dsl-elec	2600	Emsco C-111	2700	30,000
	8	dsl-elec	2600	Emsco A-1500-E	2700	30,000
Sharp Drlg Co Inc	60	dsl-elec	3200	Emsco C-3 Type II	3656	30,000
Tom Brown Inc	12	gas	680	National 50	680	10,000
POLK						
Butler Drlg Corp	3	dsl	1450	Brewster N-75	1100	12,500
Glasscock Drlg	67	dsl	2700	National 1320	2700	20,000
W B Hinton Drlg Co Inc	5	dsl	900	Spencer 7000	450	9,500/4"
REAGAN						
D B Drlg Corp	11	dsl	770	Unit U-34	360	7,000
FWA Drlg Co Inc	30	dsl	1000	Wilson Giant	800	10,000
	4	dsl	1000	Wilson Giant	800	10,000
Sterling Drlg Co	1	dsl	900	National 50-A	900	12,000
Texland Drlg Corp	3	dsl	715	Bethlehem S-45-E	600	9,000
Transcontinental Drlg Co Inc	33	dsl	898	Unit Rig U-15	650	8,500
REEVES						
Cactus Drlg Corp	31	dsl	2000	National 125	2810	25,000
Kenai Drlg of Texas Inc	11	dsl	400	National T-20	400	6,000
	11	dsl	400	National T-20	400	5,000
Sharp Drlg Co Inc	34	dsl	2925	Bethlehem 1013	2742	30,000
	59	dsl	2600	Bethlehem MC-950	2742	23,000
Tri-Service Drlg Co	10	dsl	1100	OILWELL 860	1800	21,000
REFUGIO						
Blocker Drlg Co	10	dsl	840	Ideco Hydrair H-37 ESC	430	7,500
Harkins & Co	12	dsl	1050	Cabot 750	650	9,500/4"
J & C Drlg Co	9	dsl	1050	Wilson 600	630	9,000
Padre Drlg Co Inc	3	dsl	700	Skytop/Brewster N-55	800	10,000
Rhodes & Hicks Drlg Co	6	dsl	1250	Franks Cabot 750	750	9,000
	6	dsl	1250	Franks Cabot 750	750	9,000
ROBERTS						
E W Moran Drlg Co Inc	13	dsl	1200	Gardner-Denver 700	1000	12,500
Leonard Hudson Drlg Co Inc	4	dsl	500	M-CSCO U-15	900	11,000
Moran Drlg Corp	4	dsl-elec	1400	Emsco A-800-WE	1800	15,000

TEXAS (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
ROBERTS (Contd)						
Unit Drlg & Expl Co	20	dsl	1000	Gardner-Denver	1300	15,000
ROBERTSON						
Delta Drlg Co	15	dsl	1800	Emsco D-3	1040	12,500
RUNNELS						
C & H Drlg Co	2	dsl		Brewster N-4	375	6,000
Hack Drlg Co	2	dsl	350	Brewster N-4	350	5,500
Safari Drlg Corp	5	dsl	370	Emsco GA-250-T	280	5,000
RUSK						
Globe Drlg Co Inc	6	dsl	700	Emsco C-50	700	10,000
Ironwood Drlg Inc	2	dsl	1000	M-CSCO U-36-A	820	10,500
	3	dsl	700	National 50-CA	820	10,000
Justiss-Mears Oil Co Inc	21	dsl	800	Emsco GB-500	1000	12,000
	34	gas-btne	700	Bethlehem M-58	1000	12,000
	5	dsl	450	Bethlehem S-45-E	300	6,500
Mustang Drlg Corp	1	dsl	750	Emsco 500	750	12,000
	2	dsl	750	Emsco 500	750	12,000
Pool Well Serv Co	102	dsl	350	Wilson Mogul 42 Double Drum	500	5,500
	188	dsl	1000	Wilson 42	500	5,500
Rainbow Drlg Co Inc	3	dsl	1300	Cabot 900	950	11,000
The H & S Drlg Co	2	dsl	1700	Brewster N-95	2145	14,000
United Drlg Co of Tyler	1	dsl	960	Spencer Harris 7000	470	10,000/4"
	6	dsl	1200	Bethlehem M-58	800	13,000
	7	dsl	700	Wilson Torcair Giant	616	10,000
Woolf & Magee Inc	2	dsl	1550	Gardner-Denver 700	1000	13,500/4"
	3	dsl	1450	Gardner-Denver 700	1275	13,500/4"
SABINE						
Loffland Bros Co	203	dsl	1140	M-CSCO U-15	1000	11,500
SAN JACINTO						
Atco Drlg Inc (Southern)	52	dsl		M-CSCO		12,000
SCHLEICHER						
Frank Caraway Drlg Co	1	dsl	750	Emsco GB-250	570	7,500
Transcontinental Drlg Co Inc	30	dsl	1000	Brewster N-55	850	11,000
Tucker Drlg Co Inc	3	dsl	350	Brewster N-45	600	6,500
SCURRY						
GCO Drlg Co	6	dsl	620	Brewster N-45	600	8,000
Riley Drlg Co	3	dsl	300	M-CSCO U-34	225	4,000
Wes-Tex Drlg Co	5	dsl	550	National 50-A	700	10,000
SHACKELFORD						
Jones Drlg Co	51	dsl	475	Brewster N-4	475	6,000
	53	dsl	250	Houston Portable	220	3,000
	54	dsl	475	Bethlehem S-45	475	7,000
	55	dsl	500	Bethlehem S-45	475	8,500
Lowe Drlg Inc	6	dsl	475	M-CSCO U-34	475	6,000
Morrison Drlg & Prod Co Inc	101	dsl	450	National T-20	476	6,000
SHERMAN						
Service Drlg Co	7	dsl	320	Bethlehem S-45	310	5,000
SMITH						
Burris Drlg Co	108	dsl	1200	Wilson S-42	750	11,000
Gibson Drlg Co	11	dsl	1200	Emsco D-2	1200	12,000
	7	dsl	895	Emsco GB-350	660	8,500
Lanford Drlg Co Inc	9	dsl	300	Brewster	200	2,000
Rotary Drlg Inc	1	dsl	800	Emsco	700	10,500/4"
United Drlg Co of Tyler	2	dsl	1200	Bethlehem M-58	800	13,000
	9	dsl	1200	Bethlehem M-58	800	12,500
Verna Drlg Co	21	dsl	550	M-CSCO	600	10,000
	22	dsl	550	M-CSCO U-15	600	10,000
	23	dsl	550	M-CSCO U-15	600	10,000
	24	dsl	550	M-CSCO U-15	600	10,000
STARR						
Harkins & Co	5	dsl	900	Cabot 750	650	9,500/4"
Texas Drlg Co	1	dsl	1700	National 50-CA	1455	11,500
Willis Drlg Co Inc	3	dsl	1000	Brewster N-75	1000	12,000
STEPHENS						
E & H Drlg Co	2	dsl	400	M-CSCO U-34	325	6,000
Faulk Drlg Co	4	dsl	450	Brewster N-4	450	6,000
Tierra Drlg Corp	7	dsl	550	National T-12	550	5,400
	5	dsl	500	National T-12	500	6,000
Wes-Mor Drlg Co	6	gas-btne		M-CSCO U-34		4,500
	11	dsl		Wilson Roadair		6,000
STERLING						
Cam Drlg Inc	2	dsl	510	Bethlehem S-55	750	10,000
Cherokee Drlg & Dev Corp	4	gas	1150	Wilson 75	900	11,000
Kenai Drlg of Texas Inc	25	dsl	800	Emsco G-500	800	11,000
	25	dsl	700	Emsco GB-500	800	11,000/4"
Robinson Drlg of Texas Inc	2	dsl	750	M-CSCO U-15	900	10,000
Wes-Tex Drlg Co	1	dsl	650	National 50-A	650	10,000
STONEWALL						
Hack Drlg	4	dsl	225	National T-8	250	4,000
	1	dsl	350	M-CSCO U-34	350	7,000
Moran Drlg Corp	54	dsl	750	National T-20	400	5,000
Safari Drlg Corp	1	dsl	640	Unit U-15	640	10,000
STONEWALL (Contd)						
Sojourner Drlg Corp	4	dsl		M-CSCO U-15	550	7,000
	5	dsl	250	M-CSCO U-15	550	7,000
Wes-Mor Drlg Inc	1	dsl		M-CSCO U-15		8,000
	12	dsl	2500	Unit U-15	2500	9,000
SUTTON						
Delta Drlg Co	2	dsl	1400	Gardner-Denver 700	784	12,500
	73	dsl	500	Spencer Port-A-Rig 7000	440	9,000
Tom Brown Inc	11	gas	480	M-CSCO U-15	480	8,000
	15	gas	680	M-CSCO U-15	680	10,000
Tucker Drlg Co Inc	4	dsl	214	M-CSCO U-15	450	7,500
Wes-Tex Drlg Co	10	dsl	300	Brewster N-4	500	8,000
	15	dsl	335	Brewster N-4	500	8,000
TARRANT						
I X Drlg Co Inc	1	dsl	950	Emsco G-500	950	8,500
	2	dsl	476	Emsco GA-250-T	476	6,000
	3	dsl	636	Bethlehem MC-450	636	85,000
	4	dsl	392	Wilson Mogul 42 Roadair	476	6,000
TAYLOR						
C & H Drlg Co	7	dsl		Wichtex	350	5,000
F-W Drlg Co	3	dsl	420	National T-12	400	47,504
TERRELL						
Delta Drlg Co	61	dsl	1320	Ideco Super 7-11	1040	12,500
Rowan Drlg U S	12	dsl	2000	National 1320-M	2100	18,000
Sitton Drlg Co	4	dsl	450	Wilson 75-P	900	10,000
TERRY						
Brahaney Drlg Co Inc	4	gas	1200	Emsco J-1000	1200	15,000
GCO Drlg Co	9	dsl	820	M-CSCO U-15	850	10,000
Norton Drlg Co	2	dsl	450	Wilson Mogul 42	650	7,000
Sitton Drlg Co	2	dsl	650	Wilson 75-P	900	11,500
Tri-Service Drlg Co	6	gas	850	OILWELL 96	1350	16,000
Willbros Drlg Inc	4	dsl	1700	National 55	1260	14,000
THROCKMORTON						
Carter Dev Corp	2	dsl	300	Wilson Mogul	300	7,000
E & H Drlg Co	5	LPG	550	Wilson Giant	550	7,500
Lowe Drlg Co	2	dsl	475	M-CSCO U-34	475	6,000
Megargel Drlg Co	8	btne	500	Unit U-15 Double Jacknife	500	7,000
Oilwell Drlg Inc	5	dsl	476	Wilson Mogul	476	5,500
	6		476	Wilson Super	476	5,500
Tierra Drlg Corp	1	dsl	650	Bethlehem S-45	650	7,000
TOM GREEN						
D B Drlg Corp	10	dsl	530	Brewster N-4	630	5,000
Frank Caraway Drlg Co	3	dsl	550	Bethlehem S-50	375	6,000
TRINITY						
Parker Drlg Co	161	gas	1200	National 75	1200	16,000
TYLER						
Delta Drlg Co	22	dsl	1500	Emsco D-3	1560	12,500
Lanford Drlg Co Inc	6	dsl	300	Brewster	200	1,500
Murco Drlg Corp	42	dsl-elec	2800	OILWELL E-2000	2000	25,000
UNDER CONSTRUCTION						
Resource Drlg Inc	RD-21	dsl	2330	National 110	2740	18,000
	RD-22	dsl	3105	National 1320	3740	25,000
	RD-23	dsl	1040	National 610	1220	12,000
	RD-24	dsl	2330	National 110	2740	18,000
	RD-25	dsl	1560	National 80-B	1835	14,000
	RD-26	dsl	1560	National 80-B	1835	14,000
	RD-27	dsl	1560	National 80-B	1835	14,000
	RD-28	dsl	1040	National 610	1220	12,000
	RD-30	dsl	3105	National 1625	3740	30,000
	R-29	dsl	1560	National 80-B	1835	14,000
	RD-20	dsl	1040	National 610	1220	12,000
UPSHUR						
Burris Drlg Co	109	dsl	1200	Emsco GC-50-C	750	13,000
	110	dsl	1200	Gardner-Denver 700	750	13,000
Butler-Johnson Inc	3	gas-btne	1200	Emsco A-550	1200	13,500
Dan Lester Drlg Co Inc	8	dsl	1850	OILWELL 760	1500	16,000
	9	dsl	2000	OILWELL 760	1500	16,000
Justiss-Mears Oil Co Inc	27	dsl	700	Bethlehem MC-450	900	12,000
Maxwell Herring Drlg Corp	3	dsl	1000	Wilson Atlas	1000	12,000
UPTON						
Cactus Drlg Corp	14	dsl	850	OILWELL 66	942	11,000
FWA Drlg Co Inc	17	dsl	1000	Wilson Giant	800	10,000
	3	dsl	1200	Wilson Super Giant	1050	13,000
	8	dsl	1000	Wilson Giant	800	10,000
Tom Brown Inc	4	dsl	840	National 50-CA	840	9,500
VAL VERDE						
Delta Drlg Co	4	dsl	2150	National 100	1560	16,000
VAN ZANDT						
Discovery Drlg Inc	1	dsl	3000	National 100	3000	17,500
Thunderbolt Drlg Inc	51	dsl	2600	National 100-TC	2586	20,000
VICTORIA						
T & T Drlg Co Inc	3	dsl	450	National	450	6,500

TEXAS (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Avail-able to Drwwks	Rated Depth with 4½" Pipe
VICTORIA (Contd)						
PRC Drlg Co	6	dsl	1790	Skytop/Brewster N-75	1040	13,000
Resource Drlg Inc	17	dsl	1560	National 80-B	1835	12,000
	5	dsl	2330	National 110	2740	18,000
Richards Operating Co	5	gas-btne	1200	Brewster N-75	900	12,500
WALLER						
Drillers Inc	10	dsl	1800	National 100-M	1800	18,000
Eagle Prod & Drlg Serv Inc	1	dsl-elec	2000	OILWELL 840-E	3300	20,000
WARD						
A N Norwood Inc	3	gas	1000	Brewster N-4	450	6,000
Hillin Drlg Co Inc	2	dsl	800	Emsco G-500	800	11,000
John Drlg Co	4	dsl	700	M-CSCO U-15	700	8,500
	5	dsl	700	M-CSCO U-15	700	8,500
Kenai Drlg of Texas Inc	13	dsl	400	Emsco GA-250	400	6,500
	13	dsl	400	Emsco GA-250-T	400	6,500
Moran Drlg Corp	39	dsl-elec	2500	M-CSCO C-1	1500	20,000
Parker Drlg Co	85	gas	2100	National 130	2000	23,000
Rod Ric Corp	9	dsl	750	Ideco H-35	600	8,000/4"
Rowan Drlg U S	8	dsl	2600	M-CSCO U-1220-S	2400	25,000
Santa Fe Drlg Co (Western)	4	dsl-elec	2600	Emsco C-111-E	2700	30,000
WASHINGTON						
T-L Drlg Co Inc	10	dsl	2000	Brewster N-75	1200	12,500
Tierra Drlg Corp	11	dsl	650	BDW 650	700	12,000
WEBB						
Atco Drlg Inc (Southern)	57	dsl	1200	National 610-UE	1800	12,000
Blocker Drlg Co	12	dsl	2000	OILWELL 96	2400	20,000
Delta Drlg Co	63	dsl-elec	2300	Emsco C-1 Type 11-E	2592	16,000
	89	dsl-scr	2000	Emsco D-3	2592	16,000
Dixon Drlg Co	12	dsl	300	Brewster N-4	300	7,000
	9	dsl	500	Spencer 5000 Port	300	6,000
Harkins & Co	11	dsl	1260	Skytop/Brewster N-75	1260	12,500
Jack E Bearden Drlg Co	3	dsl	1200	Wilson Mogul	600	9,000
Resource Drlg Inc	4	dsl	1560	National 80-B	1835	14,000
Southland Drlg Co Inc	12	dsl	2300	M-CSCO 1500-A	2300	24,000
	4	dsl	850	Brewster N-7	900	10,000
Texas Drlg Co	3	dsl	1700	National 50-A	1455	12,500
WHARTON						
Billings Oil Serv Inc	6	dsl	500	Skytop/Brewster H-4210	400	7,500
Burro Drlg Co Inc	1	dsl	500	Wilson Mogul 42	500	9,000
Louise Drlg Co Inc	1	dsl	2684	Ideco H-40	1006	10,000/3½"
PRC Drlg Co	1	dsl	800	Skytop/Brewster H-4610-A	500	8,000
WHEELER						
Baker & Taylor Drlg Co	14	dsl	1140	M-CSCO U-40	1140	18,000
	4	dsl	1140	M-CSCO U-20	1140	18,000
	5	dsl	1400	M-CSCO U-20	1400	22,000
Drillers Inc	40	dsl-elec	2100	Gardner-Denver 1100-E	2100	20
Helmerich & Payne Intl Drlg Co	47	dsl	2475	OILWELL H-2000	2475	26,000
Loffland Bros Co	222	dsl-elec	3300	M-CSCO U-1220-B	2200	28,000
Murco Drlg Corp	30	dsl	2800	OILWELL N-200-B	3000	25,000
Parker Drlg Co	59	gas	1650	OIME 1500-P	1650	18,000
Penrod Drlg Co	3	dsl		National 1320-M	3425	25,000
Sharp Drlg Co	52	dsl	1600	Bethlehem M-810	1836	19,000
Stahlco Drlg Co	1	dsl	510		475	5,000
	2	dsl	510	Ingersoll-Rand T-5	485	5,000
Unit Drlg & Expl Co	9	dsl	600	Brewster N-55	1050	10,000
WILBARGER						
Crawford Drlg Co	9	dsl	350	Wilson Roadaire	350	7,000
Lin-Mour Drlg Corp	31	gas	700	Wilson Giant	700	9,000
	31	gas	700	Wilson Giant	700	9,000
WILLACY						
Flournoy Drlg Co	6	dsl	800	Brewster N-45	600	9,000/4"
PRC Drlg Co	2	dsl	880	Unit 34	460	7,500/4"
Willis Drlg Co Inc	1	dsl	1000	Bethlehem B-Line MC-450	1000	12,000
WILSON						
Crawford Drlg Co	6	dsl	650	M-CSCO U-15	800	10,000
G-E Drlg Inc	2	dsl	500	Unit 34	500	6,700
WINKLER						
Ard Drlg Co	1	dsl	600	Spencer Harris	670	8,500
Brahaney Drlg Co Inc	6	gas	1200	National 100	1200	15,000
Cactus Drlg Corp	2	dsl	2000	Emsco A-1500	2976	23,000
	27	gas	2000	Brewster N-20	2976	30,000
John Drlg Co	10	dsl	900	OILWELL 66	900	10,000
Kenai Drlg of Texas Inc	17	dsl	410	Brewster N-4	450	6,500
	17	dsl	800	Brewster N-4	580	7,500
Moran Drlg Corp	51	dsl	750	Ideco H-30	350	6,000
Parker Drlg Co	65	gas	2000	National 100-M	2000	23,000
Santa Fe Drlg Co (Western)	6	dsl-elec	2600	Emsco C-111	2700	30,000
Sharp Drlg Co Inc	35	dsl	2600	Bethlehem 1013	2742	23,000
Sterling Drlg Co	16	dsl	1400	Brewster N-75	1230	14,500
WISE						
Crawford Drlg Co	1	dsl	350	M-CSCO U-15	600	8,500
	8	dsl	350	OILWELL 64-B	350	7,000

TEXAS (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Avail-able to Drwwks	Rated Depth with 4½" Pipe
WISE (Contd)						
Lin-Mour Drlg Corp	2	gas	380	Emsco G-350	380	6,500
Luke Grace Drlg Co	2	dsl	500	M-CSCO U-15	750	10,500
M N D Drlg Corp	5001363	dsl	800	M-CSCO U-15	800	9,500
	5001364	dsl	800	M-CSCO U-15	800	9,500
	51	dsl	550	National 50	550	7,000
	52	dsl	550	National 50	550	7,000
	53	dsl	600	M-CSCO U-15	600	9,000
	54	dsl	600	M-CSCO U-15	600	9,000
	55	dsl	600	M-CSCO U-15	600	9,000
	60	dsl	800	M-CSCO U-15	800	9,500
	62	dsl	600	M-CSCO U-15	600	9,000
Wes-Mor Drlg Inc	10	dsl		M-CSCO U-15		7,500
	8	gas-btne		M-CSCO U-15		6,500
WOOD						
Gibson Drlg Co	1	dsl	606	Wilson Mogul 42	398	5,000
Justiss-Mears Oil Co Inc	28	dsl	700	OILWELL 96	1000	15,000
	30	dsl	1000	Bethlehem 1013	1400	17,000
Maxwell Herring Drlg Corp	15	dsl	1200	Spencer Harris	400	10,000
W B Hinton Drlg Co Inc	9	dsl-elec	2600	National 110-UE	3000	20,000
YOAKUM						
Cherokee Drlg & Dev Corp	2	dsl	1150	Wilson 75	900	1,100
D B Drlg Corp	9	dsl	830	Unit U-34	530	7,000
Megargel Drlg Co	10	dsl	750	Unit Double Jacknife U-15	750	7,000
	2	dsl	750	Unit U-15 Double Jacknife	750	7,000
Moranco	6	dsl	750	Brewster N-75	750	12,000
Norton Drlg Co	3	dsl	500	Wilson 75	900	10,500
Sterling Drlg Co	7	dsl	850	National 50-A .	900	12,000
YOUNG						
E & H Drlg Co	1	dsl	700	M-CSCO U-15	700	7,500
	4	LPG	550	M-CSCO U-15	550	7,500
	6	dsl	600	Wilson Mogul	350	6,500
Franklin Drlg Inc	1	dsl	300	Gardner-Denver 1500	300	1,500/3½"
	2	dsl	400	Gardner-Denver Inc	400	2,500/3½"
Lin-Mour Drlg Corp	5	dsl	750	Emsco G-42	750	7,000
Luke Grace Drlg Co Inc	3	dsl	500	Cardwell Model S	450	6,400
Tierra Drlg Corp	3	dsl	650	Wilson Torqaia	650	7,000
Wes-Mor Drlg Inc	2	dsl		M-CSCO U-34		6,000
ZAPATA						
Atco Drlg Inc (Southern)	50	dsl	1560	National 100-HD	1560	14,000
New & Hughes Drlg Co Inc	10	dsl	900	Emsco GB-500	600	11,500
South Texas Drlg Co	1	dsl	500	Brewster N-45	500	8,000
Southland Drlg Co Inc	2	dsl	1300	Brewster 75-A	1150	12,000
Texas Drlg Co	2	dsl	1700	Brewster N-7	1200	12,500
ZAVALA						
Dixon Drlg Co	11	dsl	300	National T-20	300	7,500
Sundown Drlg Co	2	dsl	400	Brewster N-35	350	5,500

UTAH

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Avail-able to Drwwks	Rated Depth with 4½" Pipe
BEAVER						
Verna Drlg Co	8	dsl	500	Ideco H-40	400	6,500
	9	dsl	600	Ideco H-40	450	6,500
CARBON						
Westburne Drlg Inc	52	dsl	1650	National Ideal 110	1830	18,000/5"
DUCHESNE						
Loffland Bros Co	163	dsl	1260	National 80-B	1500	16,000
TWT Expl Inc	4	dsl	300	National T-10	300	4,000
	5	dsl	880	Model O Cardwell	880	10,000
Viersen & Cochran Drlg Co	7	dsl	1700	M-CSCO U-712-A	1554	18,000
GARFIELD						
Brinkerhoff-Signal Inc	15	dsl	2000	Gardner-Denver 1500	2000	20,000
Veco Drlg Inc	3	dsl	850	M-CSCO	700	9,000
	3	dsl	850	M-CSCO	700	9,000
GRAND						
Atco Drlg Inc	5	dsl	326	National T-32	326	8,000/4"
Cactus Drlg Corp	5	dsl	1000	National 75	1180	12,000
Cardinal Drlg Co	4	dsl	560	National T-32	440	6,000/⅛"
Kenai Drlg Rocky Mountain Inc	3	dsl	1400	OILWELL 52-T	700	9,500
Nicor Drlg Co	38	dsl	900	Wilson 75	900	10,000
Veco Drlg	6	dsl	1400	OIME 750	750	11,000
JUAB						
Penrod Drlg Co	102	dsl	1600	National 610-M	964	16,000
	20	dsl	2600	National 1320-M	1950	25,000
MILLARD						
Loffland Bros Co	58	dsl-elec	2000	National 80-B	2000	18,000
Penrod Drlg Co	23	dsl	2600	National	1950	25,000
RICH						
Parker Drlg Co	118	dsl	2000	National 100-M	2700	20,000

UTAH(Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
RICH (Contd)						
True Drlg Co	20	dsl	2100	National 125	2100	20,000
Viersen & Cochran Drlg Co	9	dsl	2150	National 110	2400	20,000
SAN JUAN						
All Western Drlg	2	gas	700	Emsco U-15	700	10,000
Brinkerhoff-Signal Inc	9	dsl	700	Brewster N-45	600	7,500
Loffland Bros Co	211	dsl	1260	M-CSCO U-15	1000	10,000
Mesa Drillers	1	dsl	600	National 50-A	750	8,000
Tierra Drlg Corp	6	dsl	850	Brewster	800	8,000
SEVIER						
Loffland Bros Co	98	dsl-elec	1400	M-CSCO U-40-E	1600	13,000
SUMMIT						
Brinkerhoff Drlg Co Inc	40	dsl	2400	National 130	2400	22,000
Brinkerhoff-Signal Inc	8	NGB	900	M-CSCO U-40	900	11,000
Dixilyn-Field Drlg Co	35	dsl	1600	National 80-UE	1800	15,000
	36	dsl	2000	National 110-UE	2000	18,000
Exeter Drlg Northern Inc	29	dsl	1200	Gardner-Denver 800	1200	15,000
Parker Drlg Co	116	dsl-elec	2000	National 80-B	2750	20,000
	117	gas	2000	National 110	2700	22,000
	183	dsl	1650	OIME 1500-P	1650	20,000
	56	dsl	1200	National 50-A	1800	11,000
R L Manning Co	32	dsl-elec	2000	Emsco D-3	1000	16,500
Viersen & Cochran Drlg Co	11	dsl	2600	National 110	2400	20,000
TOOELE						
TWT Expl Inc	2	dsl	200	Gardner-Denver 15-W	200	2,000
UINTAH						
All Western Drlg	1	dsl	1200	Schramm		1,500
Carmack Drlg Co	5	dsl	1000	Franks 400	430	5,000
Loffland Bros Co	23	dsl	1260	M-CSCO U-15	1000	9,000
WASATCH						
Loffland Bros Co	1	dsl	1290	M-CSCO U-40	1440	13,000

VIRGINIA

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
DICKENSON						
Union Drlg Inc	4	dsl		Spencer Harris 6000	380	6,000

WASHINGTON

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
KITTITAS						
Brinkerhoff Drlg Co Inc	53	dsl-elec	2325	National 100	2325	18,000
LEWIS						
Taylor Drlg Co	5	prop	350	M-CSCO U-34	225	4,000

WEST VIRGINIA

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
UNDESIGNATED						
Challenger Drlg	16-5	dsl-elec	600	Emsco G-[illegible]00	750	2,000/9⅝"
BARBOUR						
Ray Resources	3	dsl	1000	Ideco BIR-5525	600	5,500
Union Drlg Inc	6	dsl		Skytop/Brewster N-55	430	6,000
CLAY						
Smith Drlg Co Inc	10	dsl	350	Challenger M-320	360	5,000/3½"
DODDRIDGE						
Union Drlg Inc	5	dsl		Cardwell 350	380	5,000
FAYETTE						
Smith Drlg Co Inc	8	dsl	350	Challenger M-2-80	360	4,500/3½"
LEWIS						
Delta Drlg Co	67	dsl		Spencer 7000	480	9,000
Union Drlg Inc	1	dsl		Ideco H-35	380	5,000
	2	dsl		Cabot Franks 658	290	4,000
	8	dsl		Ideco H-35	350	5,000
	9	dsl	425	Cabot Franks 74053-6	425	6,500
MINERAL						
Delta Drlg Co	84	dsl	1800	Emsco D-3 Type 3	1560	16,000
PRESTON						
Ray Resources	8	dsl	1000	Brewster N-55	800	10,000
PUTNAM						
FWA Drlg Co Inc	15	dsl	350	Wilson 38	350	4,500
	23	dsl	375	Wilson Super 38	400	6,000
Ray Resources	4	dsl	1000	Ideco BIR-5525	600	5,500
RALEIGH						
Ray Resources	9	dsl	1000	Ideco H-35	400	6,000
ROANE						
FWA Drlg Co Inc	13	dsl	375	Wilson Super 38	350	4,500
UPSHUR						
Union Drlg Inc	3	dsl		Ideco 650	380	6,500
	7	dsl		Spencer Harris	350	5,000
WOOD						
Ray Resources	6	dsl	1000	Ideco DIR-7015		8,500

WYOMING

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
UNDESIGNATED						
Brinkerhoff Drlg Co Inc	38	dsl	350	Brewster N-4	312	5,000
Loffland Bros Co	325	dsl	2160	Gardner-Denver 2100	2400	25,000
	119	dsl-elec	4200	Emsco CE-3000 Type 2	3000	32,000
Shelby Drlg Inc	51-E	dsl-elec	1000	Ideco 725-E	750	10,000
ALBANY						
Westburne Drlg Inc	60	dsl	650	National 50-A	700	9,000
BIG HORN						
Anderson-Myers Drlg Co	1	dsl	680	National T-32	350	7,500
	15	dsl	1500	Skytop/Brewster N-75-A	1500	14,000
Barnhart Drlg Co Inc	1	dsl	700	Ideco H-525	350	6,500
Exeter Drlg Northern Inc	19	dsl	700	Gardner-Denver 800	1100	14,000
CAMPBELL						
Atco Drlg Inc	20	dsl	800	Emsco GB-500	800	10,000
	6	dsl	1020	National 370	700	8,500
Cyclone Drlg Co	2	dsl	800	Bethlehem M-58	800	10,000
	4	dsl	800	Unit U-15	800	9,000
Exeter Drlg Northern Inc	17	dsl	500	National 50-A	750	9,500
	20	dsl	500	Emsco GC-500	750	11,000
	21	dsl	550	M-CSCO U-15	720	9,500
	3	dsl	550	National 50-A	750	9,500
	34	dsl	500	M-CSCO U-15	750	9,500
	38	dsl	500	M-CSCO U-15	750	9,500
	7	dsl	700	Brewster N-75	1000	12,000
	8	dsl	500	Brewster N-7	750	9,500
	9	dsl	750	Brewster N-75	1100	12,500
	10	dsl	500	Brewster N-55	750	10,500
Gallagher Drlg Inc	6	dsl	520	Cardwell Model O	970	12,000
GCO Drlg Co	7	dsl	1750	National 75-CA	1500	13,000
Green Drlg Co	3	dsl	1350	Emsco GA-500	900	10,000
Lohmann-Johnson Drlg Co Inc	20	dsl	700	OILWELL 600	600	10,000
Prairie Drlg Co	3	dsl	1000	Emsco GB-500	1000	10,000
Republic Drlg Serv Inc	5	dsl-elec	1200	OILWELL 760-E	1000	14,000
Star Drlg	81	dsl	1000	Gardner-Denver GD-800	1350	15,000
	82	dsl	1000	Gardner-Denver GD-700	1350	12,500
Transcontinental Drlg Co Inc	55	dsl	1020	OILWELL 76	980	12,000
	56	dsl	1100	Ideco H-750	910	10,500
CARBON						
Brinkerhoff Signal Inc	12	dsl	1000	National 55	1000	12,000
Century Drlg Co	2	dsl	425	National T-20	500	5,500/3½"
Exeter Drlg Northern Inc	11	dsl	700	Gardner-Denver 700	1000	12,500
J B Roden Drlg Co	2	dsl	370	Failing 90	380	5,500/4"
Pease Bros Inc	1	dsl	1275	National 55	1200	14,000
True Drlg Co	15	gas-LPG	1300	National 50-A	1000	11,500
Westburne Drlg Inc	51	dsl	850	National Ideal 55	1050	12,500
CASPER						
Tierra Drlg Corp	12	dsl-elec	750	BDW 800-MX	1000	14,000
	14	dsl-elec	1000	BDW 800-MX	750	14,000
	15		1000	M-CSCO U-712-EA	1200	16,000
CONVERSE						
Brinkerhoff Drlg Co Inc	57	dsl	1560	National N-80-B	1560	17,000
Exeter Drlg Northern Inc	18	dsl	500	National 50-A	750	9,500
	33	dsl	500	M-CSCO U-15	750	9,500
	39	dsl	500	M-CSCO U-15	750	9,500
Green Drlg Co	5	dsl	900	Unit Rig U-15	950	10,000
Harpel Drlg Co	4		1250	Brewster N-46	900	12,000
Lohmann-Johnson Drlg Co Inc	1	dsl	670	M-CSCO U-15 S/N 537	500	8,000
	4	dsl	1350	OILWELL 76-700 S/N H-27-15	600	12,000
W E S Corp	7		1000	Wilson Giant	1000	12,000
CROOK						
Cyclone Drlg Co	1	dsl	400	Emsco GB-250	600	7,500
Exeter Drlg Northern Inc	37	dsl	500	M-CSCO U-15	750	9,500
Transcontinental Drlg Co Inc	40	dsl	1200	OILWELL 76	1224	12,500
FREMONT						
Aspen Drlg Co	2	dsl	500	Challenger M-280-DD	500	4,500
Bomac Drlg Co	43	dsl	930	Emsco GB-500	930	10,500
Dixilyn-Field Drlg Co	32	dsl	2300	National 130	2331	25,000
	34	dsl-elec	3200	National 1320-UE	2500	25,000
	33	dsl-elec	2000	OILWELL 940-E	3000	20,000
	37	dsl	1600	National 80-UE	1800	15,000
Exeter Drlg Northern Inc	30	dsl	750	Emsco D-2	1000	12,500
Forwest Inc	1	dsl-elec	2600	Ideco E-2100	1800	22,000
J B Roden Drlg Co	5	dsl	650	Emsco GB-350	650	10,500
Loffland Bros Co	8	dsl	2100	M-CSCO U-914-C	2400	20,000
Parker Drlg Co	124	dsl	2000	OILWELL 2000-E	2750	25,000
Prairie Drlg Co	5	dsl	1000	Emsco GB-500	1000	10,000
R L Manning Co	26	gas-btne	1300	Emsco GB-800	1365	14,000

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Avail-able to Drwwks	Rated Depth with 4½" Pipe
WYOMING (Cont'd)						
FREMONT (Contd)						
Rosamond Drlg Co	8	dsl	2350	National 130	2475	25,000
Tom Brown Inc	21	dsl	1100	National 75-CA	1100	14,000
Trigg Drlg Co Inc	6	dsl-elec	2400	Emsco	2400	25,000
Westburne Drlg Inc	54	dsl	655	National 50-A	800	9,000
	56	dsl	750	Emsco GC-500	950	12,000
	58	dsl	310	National T-32	275	7,000
HOT SPRINGS						
Anderson-Myers Drlg Co	4	dsl	1450	Emsco GA-500	1200	11,000
Barnhart Drlg Co Inc	2	dsl	600	National T-20	350	5,000
JOHNSON						
Exeter Drlg Northern Inc	35	dsl	500	M-CSCO U-15	750	9,500
Green Drlg Co	4	dsl	900	Unit Rig U-15	900	10,000
Loffland Bros Co	40	dsl	1680	Brewster N-95	2200	16,000
LINCOLN						
Anderson-Myers Drlg Co	3	dsl	1450	Emsco GA-500	1200	11,000
Exeter Drlg Northern Inc	28	dsl	1200	Gardner-Denver 800	1200	15,000
J B Roden Drlg Co	3	dsl	1575	OIME 1500-SL	1575	19,000
Loffland Bros Co	108	dsl	2160	Brewster N-12-A	2400	25,000
	60	dsl-elec	1800	M-CSCO U-712-A	2000	17,000
Montgomery Drlg Co	31	dsl	2000	National 110-UE	2700	18,000
	32	dsl	2700	National 110-UE	2000	18,000
Parker Drlg Co	163	dsl	1650	OIME 1500-P	1650	20,000
R L Manning Co	20	dsl	1341	Emsco J-1000	1341	14,000
	33	dsl-elec	2300	Emsco C-1	1500	19,500/5"
True Drlg Co	16	gas-LPG	1300	National 50-A	1000	11,000
	17	dsl	1350	National 50-A	1000	12,000
NATRONA						
Brinkerhoff-Signal Inc	14	dsl	1000	National 55	1000	12,500
Dixilyn-Field Drlg Co	31	dsl-elec	2300	National 1320-UE	5000	25,000
Harpel Drlg Co	5	dsl	1250	Brewster N-42	700	8,500
Parker Drlg Co	169	dsl	1650	OIME 1500-P	1650	20,000
True Drlg Co	19	dsl	1000	National 50-A	1000	12,000
NIOBRARA						
Anderson-Myers Drlg Co	10	dsl	650	National T-32	650	8,500
Atco Drlg Inc	27	dsl	720	Bethlehem C-50	720	8,500
Harpel Drlg Co	3	dsl	1150	Ideco H-725	900	10,000
Prairie Drlg Co	2	dsl	450	Emsco GB-160-T	300	5,000
True Drlg Co	18	dsl	350	Emsco GB-250-T	350	6,500
PARK						
Barnhart Drlg Co Inc	3	dsl	600	Ideco H-35	350	5,500
Brinkerhoff Drlg Co Inc	54	dsl-elec	2325	National 110-UE	2325	18,000
R L Manning Co	16	gas-btne	675	National T-32	458	6,500
	17	gas-btne	875	Emsco GC-500	910	11,000
	28	gas-btne	800	Emsco GB-350	488	7,500
	8	dsl	850	Emsco GA-500	894	9,000
Wyoming Well Serv Inc	21	dsl	500	Ideco H-35	318	5,000
	24	dsl	13000	Cardwell 200-A	318	4,500
	30	dsl	13000	Cardwell 200-A	318	4,500
SHERIDAN						
Exeter Drlg Northern Inc	36	dsl	450	Bethlehem M-58	750	11,000
SUBLETTE						
Brinkerhoff-Signal Inc	6	dsl	1500	Gardner-Denver 1100	1500	18,000
Helmerich & Payne Intl Drlg Co	81	scr	2200	National 110-UE	1500	20,000
J B Roden Drlg Co	1	dsl	636	Emsco GB-350	640	8,500
	6		750	National CA-75	750	12,000
Loffland Bros Co	97	dsl-elec	3300	M-CSCO U-1220-EB	3300	25,000
Norton Drlg Co	6	dsl	550	Wilson 75	950	12,000
Roden Drlg Co	4	dsl	1000	Emsco GB-350	700	10,000
Viersen & Cochran Drlg Co	14	dsl	2300	Emsco 800-A	1554	18,000
SUMMIT						
Anderson-Myers Drlg Co	7	dsl	1200	National 55	1500	12,000
Exeter Drlg Northern Inc	23	dsl	500	M-CSCO U-15	720	8,700
R L Manning Co	6	gas-btne	1368	Emsco GB-800	1368	14,000
	30	dsl-elec	2000	Emsco D-3	1000	16,500
WYOMING (Cont'd)						
SWEETWATER						
Anderson-Myers Drlg Co	17		2300	National 110	2300	18,000
Atco Drlg Inc	25	dsl	700	Ideco H-525	700	9,500
	56	dsl-elec	1800	National 80-UE	1800	15,000
Brinkerhoff-Signal Inc	3	dsl	1000	National 55	1000	12,000
Exeter Drlg Northern Inc	24	dsl	1000	M-CSCO U-20	1500	15,000
	31	dsl	1000	Gardner-Denver 800	1500	15,000
Helmerich & Payne Intl Drlg Co	53	dsl-elec	800	Ideco H-525	1000	11,500
Loffland Bros Co	208	dsl	1560	National 110	1800	16,000
	234	dsl	2160	M-CSCO U-40	2400	13,000
	29	dsl-elec	1400	M-CSCO U-36-A	1600	11,000
Lord Drlg Co Inc	1	dsl	2200	OILWELL M-860	1650	18,000
Norton Drlg Co	8	dsl	550	Wilson 75	950	12,000
R L Manning Co	7	gas-btne	885	Emsco G-500	756	8,500
Parker Drlg Co	177	dsl	1300	OIME SL-1000-P	1300	15,000
Pool Well Serv Co	66	dsl	300	Cabot 500	6000	5,500
Prairie Drlg Co	1	dsl	500	Ideco H-35	300	6,500
	6	dsl	1200	M-CSCO U-40	1200	12,500
R L Manning Co	22	dsl	900	Emsco A-550	1100	11,000
	29	dsl	800	Emsco GB-500	860	9,000
Transcontinental Drlg Co Inc	53	dsl	900	National 50-A	980	9,000
	57	dsl	1400	Bethlehem M-810	1224	13,000
True Drlg Co	14	dsl	1000	National 50-A	1000	12,000
	9	dsl	1200	M-CSCO U-40	1200	15,000
TETON						
Brinkerhoff-Signal Inc	72	dsl	2000	National 1320-UE	2000	25,000
UINTA						
Anderson-Myers Drlg Co	12	dsl	2000		2000	18,000
	14	gas	1500	Skytop/Brewster N-75-A	1500	14,000
Bomac Drlg	29	dsl	2000	OILWELL 96	2300	18,000
	44	dsl	2000	Gardner-Denver 800	1800	16,000
Brinkerhoff-Signal Inc	7	dsl	1500	National 80-B	1500	15,000
	73	dsl	1500	National 80-B	1500	15,000
Loffland Bros Co	184	dsl	2160	M-CSCO U-712-A	2400	15,000
	214	dsl	1860	M-CSCO U-40	1600	13,000
	30	dsl-elec	2160	M-CSCO 914-EC	2200	20,000
Lord Drlg Co Inc	3	dsl	2200	OILWELL M-860	1650	18,000
Noble Drlg Corp	N-116	dsl	2250	National 110-UE	2000	20,000
	E-1101	dsl	2000	Emsco A-1100	1800	18,000
	OW-1	dsl	2200	OILWELL 96	1800	18,000
	132	dsl-elec	2600	National 1320-UE	2000	22,000
Parker Drlg Co	171	dsl	4650	OIME 1500-P	1650	20,000
	173	dsl	1650	OIME 1500-P	1650	20,000
R L Manning Co	21	dsl	1365	National 80-B	1365	15,000
	25	dsl	1180	Brewster N-75	1180	11,500
	31	dsl-elec	1550	Emsco D-2	700	11,000
Transcontinental Drlg Co Inc	41	dsl	2450	Gardner-Denver GD-1100	2742	18,000
Viersen & Cochran Drlg Co	8	dsl	1450	National 80-B	1554	18,000
WASHAKIE						
Anderson-Myers Drlg Co	2	dsl	1600	National 55	1200	12,000
	9	dsl	1450	National 55	1200	12,000
	11	dsl	1500	National 55	1200	12,000
Bomac	28	dsl	930	Emsco G-500	930	10,500
WESTON						
Enapco	2	dsl	1890	National 610	1080	13,000
Farnsworth & Kaiser Drlg Co	1	dsl	900	M-CSCO U-15	900	8,000
	3	dsl	330	Joy 300	330	4,000
	6	dsl	450	M-CSCO U-34	450	6,500
L & R Drlg Co	4		400	Franks Rocket	195	3,000/3½"
UINTA						
Lord Drlg Co Inc	2	dsl	2200	OILWELL M-860	1650	18,000

Canadian Rotary (Land) Drilling Contractors

ADECO DRLG & ENGR CO LTD 505-2nd St SW Calgary AB Canada T2P 1N8 403-266-6291
ARGUS DRLG-DIV TARO IND 1580-540 5th Ave SW Calgary AB Canada T2P 0M2 403-264-3040
ATCO DRLG INC 1001-500-4th SW Calgary AB Canada T2P 2V6 403-263-1215
BALTIC DRLG LTD 901-7015 MacLeod Trail SW Calgary AB Canada T2H 2K6 403-259-5213
BAWDEN PETER SERV LTD 2750 400 4th Ave SW Calgary AB Canada T2P 1G7 403-265-1511
BEAVER DRLG LTD 1117 Sun Oil Bldg 500 4th Ave Calgary AB Canada T2P 2V6 403-265-6472
BIRD OIL EQUIPMENT LTD 304 8th Ave SW Suite 800 Calgary AB Canada T2P 1C2
BLOCKER CANADA LTD 304 6th Ave SW Calgary AB Canada T2P 0R4 403-233-0866
BOW ISLAND DRLG SW 1417-500 4th Ave Calgary AB Canada T2P 2V6 403-264-5413
CACTUS DRLG CORP LTD P O Box 1508 Calgary AB Canada T2P 2L6 403-263-5670
CAN TEX DRLG & EXPL LTD 1520 Royal Bk Bldg 335 8 Ave S Calgary AB Canada T2P 1C9 403-265-8441
CAPRI DRLG LTD 314-540 12 Ave SW Calgary AB Canada 403-261-5991
CHALLENGER DRLG 220-444 7th Ave SW Calgary AB Canada T2P 0X8 403-269-3121
CORUNNA PETR LTD P O Box 640 Corunna Ontario N0N 1G0 Canada 519-862-5505
GARNETT DRLG LTD 814-603-7 Ave SW Calgary AB Canada T2P 2T5 403-262-7906
GUTHRIE MC LAREN DRLG LTD 14630 119th Ave Edmonton AB Canada T5L 2P2 403-455-3191
HI TOWER DRLG Box 6650 Stn D Calgary AB Canada T2P 2V8 403-231-1211
JADE DRLG LTD 9816 B-44 Ave Edmonton AB Canada T6E 5E5 403-437-2930
JOMAX DRLG LTD P O Box 8432 Edmonton AB Canada T2P 3E6 403-265-5312
KENTING DRLG CO LTD 370 700 6th Ave SW Calgary AB Canada T2P 0T8 403-263-2980
KISSINGER PETR LTU 540 5th Ave SW Suite 1420 Calgary AB Canada T2P 0M2 403-265-2705
LOFFLAND BROS CO P O Box 2847 Tulsa OK 74101 918-622-9330
MONTGOMERY DRLG CANADA LTD 960-700-4 Ave SW Calgary AB Canada T2P 3J4 403-232-1644
MUSTANG DRLG 1426 500 Fourth Ave SW Calgary AB Canada T2P 2V6 403-263-8520
NABORS ALASKA DRLG INC 324 Eighth Ave SW TD Square Calgary AB Canada T2P 272 403-263-6610
NUGGET DRLG LTD 8755 51 Ave Edmonton AB Canada T6E 541 403-468-2133
PARKER DRLG CO 8 E Third St Tulsa OK 918-585-8221
PRECISION DRLG LTD Suite 1204 500 4th Ave SW Calgary AB Canada T2P 2V6 403-164-4882
RED ARROW DRLG LTD 520 304 8th Ave SW Calgary AB Canada T2P 1C2 403-264-0695
REGENT DRLG LTD 12912 125th Ave Edmonton AB Canada T5L 3C1 403-455-2121
S & T DRLG LTD 5825 - 98 St Edmonton AB Canada T63 3L4 403-955-7011
SARCEE DRLG DIV ATCO DRLG LTD 700-800 6th Ave SW Calgary AB Canada T2P 2V6 403-263-5040
SEDCO DRLG DIV OF BOW VALLEY 630-6 Ave SW Calgary AB Canada T2P 0S8 403-231-1211
SHELBY DRLG LTD 400-1550 5th St SW 2830 Calgary AB Canada T2R 1K3 403-269-7976
SIMMONS DRLG CANADA LTD 524-550 6th Ave SW Calgary AB Canada T2P 0S2 403-263-7686
TRI CITY DRLG LTD 14305 120 Ave Edmonton AB Canada T5L 2R8 403-453-3771
WESTBURNE DRLG CANADA LTD 200 535 7th Ave SW Calgary AB Canada T2B 0Y4 403-233-6600

Canadian Contract Rotary (Land) Drilling Rigs

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
ALBERTA						
UNDESIGNATED						
	7	dsl	225	RAD 200	275	6,000
Atco Drlg Co	12	dsl	1950	National 80-B Hercules	1950	14,000
	10	dsl	400	Brewster N-45	400	7,500
	11	dsl	1500	National 55 Hercules	1500	11,500
	14	dsl-elec	2200	National 1320 Hercules	2200	20,000
	3	dsl	500	National T-45	680	8,500
	4	dsl	1200	National 55 Hercules	1200	11,500
	9	dsl	400	National T-20	400	5,000
	1	dsl	325	Ideco H-35-D	278	6,500
	16	dsl	500	Emsco GA-350	556	7,500
	17	dsl	600	OILWELL 66	800	9,500
	18	dsl	278	National T-32	278	6,500
	19	dsl	500	OILWELL 66	556	9,500
	20	dsl	650	Emsco GA-500	652	9,500
	25	dsl	370	Emsco GA-350	556	7,500
	5	dsl	325	National T-32	278	6,500
	59	dsl	1800	National 80-UE	1800	15,000
	6	dsl	526	Brewster N-45	556	8,000
	8	dsl	650	Ideco H-525	652	8,500
	7	dsl	720	Ideco Super 750	720	10,500
Baltic Drlg 1979 Ltd	10	dsl	940	Superior 700	600	9,500
	1	dsl	870	Superior 700	600	9,000
	14	dsl	800	National 50-AM	550	9,500
	2	dsl	1600	National 80-B	1850	15,000
	24	dsl	300	National T-20	326	6,500/4"
	3	dsl	1000	Superior 700	600	9,500
	34	dsl	800	Emsco GC-350	550	8,500
	4	dsl	1000	Superior 700	600	9,500
Beaver Drlg Ltd	1	dsl	300	National T-32	300	7,000
	2	dsl	300	National T-20	300	6,000
	3	dsl	300	National T-20	300	6,000
	4	dsl	300	National T-32	300	7,000
	5	dsl	300	National T-32	300	7,500
	6	dsl	300	National 370	550	8,500
	7	dsl	550	National 370	550	9,500
	8	dsl	300	National T-32	300	7,000
	9	dsl	550	National 370	550	9,500
Bird Oil Equipment Ltd	1	dsl		Ideco	300	5,000
Blocker Canada Ltd	1	dsl	2000	OIME 1500-SL	1500	18,000
	2	dsl	2000	OIME 1000-SL	1500	16,000
	3	dsl	1500	OIME 750-SL	1155	12,000
	4	dsl	1500	OIME 750-SL	1155	12,000
	5	dsl	1550	Brewster N-75	1425	12,000
	6	dsl	1550	OIME 1000-SL	1500	16,000
	10	dsl	1000	OIME 5-D3	770	10,000
	7	dsl	1500	OIME 750-SL	1155	12,000
	8	dsl	1600	OIME 750-SL	1155	12,000
	9	dsl	1600	OIME 750-SL	1155	12,000
Can-Tex Drlg & Expl Ltd	10	dsl	400	Cardwell J-450	450	7,000
	5	dsl	1200	Emsco GB-800	1200	12,000
	6	dsl	1400	Emsco GB-80083	1275	14,000
	8	dsl	820	OILWELL 66	820	9,000
Capri Drlg Ltd	1	dsl	300	National T-12	330	5,000
	2	dsl	300	National T-12	330	3,500
	3	dsl	300	Ideco H-25-D	330	6,500
	4	dsl	250	TSM-3000	330	3,000
	5	dsl	700	National T-32	700	8,000
	6	dsl	850	National 50 A	1365	10,000
Challenger Drlg	11	dsl	300	National T-20	350	6,500
	12	dsl	500	National 50-A	600	9,000
	15	dsl	1050	Ideco 711	1010	12,500
	2	dsl	700	National T-45	505	9,000
	3	dsl	500	National 50-A Modified	600	9,000
	10-E	dsl-elec	2400	M-CSCO Unit 1220-E	3000	22,000/5"
	51	dsl	2000	National 110	1800	19,000/5"
	7-E	dsl-elec	1400	National 80-E	2230	14,500/5"
	39-H	dsl	300	National T-20	350	6,500
	4-E	dsl-elec	1100	National T-45	960	9,000
	44	dsl	1500	National 80-B	1695	14,000/5"
	45	dsl	1800	National 100-HD	1800	18,000/5"
	5-E	dsl-elec	1400	National 55-E	1750	13,000/5"
	8-E	dsl-elec	1400	National 80-E	2250	14,500/5"
	49	dsl	2000	National 110	1800	19,000/5"
Garnett Drlg Ltd	10	dsl	1400	National 610	900	11,000
	3	dsl	900	Cardwell J-700	900	11,000
	5	dsl	900	Brewster N-55	900	11,000
	6	dsl	1100	M-CSCO U-40	900	11,000
	7	dsl	1600	National 610	1200	12,000
	9	dsl	1200	Brewster N-7	900	11,000
Hi Tower Drlg	18	dsl-elec	2400	OILWELL 760	2400	15,000
	20	dsl-elec		760	2400	2,400
	7	dsl	1000	OILWELL 66	1000	10,000
ALBERTA (Cont'd)						
UNDESIGNATED (Contd)						
Hi Tower Drlg Div Bow Valley	1	dsl-elec	2800	National 1320-UE	1400	20,000
	10	dsl	1200	OILWELL 76	1200	12,000
	11	dsl	700	M-CSCO U-34	350	6,000
	16	dsl	1220	M-CSCO U-40	1220	12,500
	17	dsl	650	National 50-A	340	7,000
	23	dsl	1100	National 50-A	810	9,000
	3	dsl	1020	OILWELL 66	1020	10,000
	6	dsl	1020	OILWELL 76	1020	12,000
	8	dsl	1200	OILWELL 76	1200	10,500
	9	dsl	880	National 50-A	600	8,500
	19	dsl	580	OILWELL 52-T	350	6,500
	4	dsl-elec	3400	OILWELL E-2000	2000	20,000
Jade Drlg Ltd	1	dsl	230	Wilson Super 38	185	3,500
	2	dsl	230	Wilson Super 38	185	3,500
	3	dsl	380	Ideco H-25	380	5,900
	4	dsl	500	Ideco H-25	430	5,900
	5	dsl	500	Ideco H-30	420	70,000
Kenting Drlg Co Ltd	30-E	dsl-elec	2000	National 80-UE	1000	12,000
Kissinger Petr Corp	1	dsl	500	Cardwell J-450	500	7,000
	1	dsl	318	Cardwell J-450	318	6,500
	4	dsl	300	National T-12	300	4,500
	3	dsl	100	National T-8	220	2,500
Loffland Bros Co	171	gas	2132	M-CSCO U-914-B	1700	18,000
	221	dsl	2880	M-CSCO U-1220-AE	3200	25,000
	36	dsl	2000	M-CSCO U-914-C	2880	20,000
	89	dsl-elec	2100	M-CSCO U-1220-EB	2400	25,000
	93	dsl-elec	2100	M-CSCO U-1220-EB	2400	25,000
Montgomery Drlg Canada Ltd	41	scr	1350	National 1320-UE	2000	23,000/5"
	45	dsl	1200	Emsco GB-800	1000	12,000/5"
	46	dsl-elec	1500	National 1320-UE	2400	23,000/5"
	49	scr	1000	National 110-E	1800	2,100
Nabors Drlg Ltd	5	dsl	1245	OILWELL 76	1326	12,000
	10	dsl	970	National 50-A	770	10,000
	11	dsl	1070	National 50-CA	770	8,500
	12	dsl	1200	OILWELL 66	884	11,000
	15	dsl	1200	Emsco A-550	884	11,000
	16	dsl	1700	Emsco A-800	1740	15,000/5"
	19-E	dsl-elec	2000	Emsco C-I Type II	3900	20,000
	2	dsl	1195	OILWELL 76	1326	12,000
	20	dsl	2600	National 110	2800	20,000/5"
	23-E	dsl-elec	1600	Emsco D-2	1800	12,000
	24-E	dsl-elec	2600	Emsco Electrohoist 2-C	3900	14,000
	4	dsl	1700	OILWELL 76	1900	14,000
	7	dsl	1200	National 55	770	11,000
Parker Drlg Co	123-HH/12	dsl	1200	OIME SL-1500	1800	17,000
	98	dsl	1500	National 100	1950	17,000
Peter Bawden Drlg Serv Ltd	18	dsl	2300	National 110-M	1500	16,000/5"
	30	dsl	1850	Emsco D-3 1000	1000	15,000
Precision Drlg Ltd	1	dsl	350	Ideco H-30-FD Super	350	6,500
	10	dsl	350	Ideco H-35-D	350	7,200
	11	dsl	350	Ideco H-40-PD	350	7,200
	12	dsl	500	Ideco H-35-D	350	7,200
	14	dsl	350	Ideco H-40	500	7,200
	15	dsl	350	Ideco H-30-FD	350	7,200
	3	dsl	350	Ideco H-30 Super 2-FD	350	6,500
	4	dsl	350	Ideco H-35-D	350	7,200
	5	dsl	350	Ideco H-525-D	350	7,500
	6	dsl	350	National T-20	350	5,500
	7	dsl	350	Ideco H-35-D	500	7,000
	8	dsl	350	Ideco H-30-D	350	5,500
	9	dsl	350	Ideco H-35-D	350	7,200
Red Arrow Drlg Ltd	1	dsl	225	National T-20	275	6,000
	10	dsl	225	RAD 200	275	1,850
	11		225	RAD 200	275	6,000
	12	dsl	225	RAD 200		1,850
	2	dsl	225	National T-12	275	5,000
	3	dsl	225	National T-20	275	6,000
	4	dsl	225	National T-20	275	6,000
	5	dsl	225	National T-20	275	6,000
Regent Drlg Ltd	17-E	dsl	2700	Gardner-Denver	1000	14,000
Sarcee Drlg	10	dsl	300	Ideco H-30-F	259	5,500
	11	dsl	350	Ideco H-30-F	259	5,500
	14	dsl	360	Ideco H-35-D	350	7,500
	1	dsl	300	Ideco HD-25	230	5,000
	12	dsl	350	Ideco H-35	259	7,500
	2	dsl	300	Brewster N-4	224	5,500
	3	dsl	300	National T-20	224	5,500
	4	dsl	300	National T-20	224	5,500
	5	dsl	300	Brewster N-4	224	5,500
	6	dsl	300	Ideco H-30-AD	230	5,500

ALBERTA (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
UNDESIGNATED						
Sarcee Drlg	8	dsl	250	National T-12	230	5,000
	9	dsl	250	National T-20	230	5,500
Sedco Drlg Div of Bow Valley	79	dsl	300	Gardner-Denver 3000	240	4,000/3½"
	83	dsl	300	Cardwell 150-A	280	
	86	dsl	300	Kremco K-600-D	350	4,500
	88	dsl	350	Cardwell S-350	350	5,500
	89	dsl	330	Ideco H-30-D	330	4,000/4½"
	92	dsl	300	Cardwell S-350	240	4,500
	93	dsl	300	Cardwell AT-150 Double Drum	200	3,500
	95	dsl	300	Cardwell AT-150 Double Drum	200	3,500
	97	dsl	300	National T-32	300	6,500
	99	dsl	330	Emsco GA-250	300	6,500
Shelby Drlg Ltd	1	dsl	360	Cooper TC 42x12	365	5,500/3½"
	2	dsl	360	Cooper 42-12 300 Oiler	350	5,500/3½"
	3	dsl	360	Franks Rocket 111	450	6,000
	5	dsl	360	Cooper 42x12 550 Oiler	450	6,500
	7	dsl	360	Cooper 32-32	225	3,000/3½"
BEAVERLODGE						
Kenting Drlg Co Ltd	20	dsl-elec	2400	M-CSCO U-914-E	2000	20,000/5"
BERLAND RIVER						
Peter Bawden Drlg Serv Ltd	19	dsl	1200	OILWELL 76	700	12,000
BIGORAY						
Adeco Drlg & Engr Co Ltd	2	dsl	380	OIME 503	365	8,500
Cactus Drlg	16	dsl	500	Unit 34	500	6,500
BOLTON						
Peter Bawden Drlg Serv Ltd	2	dsl-elec	2400	National 1320-UE	2000	22,000/5"
BONNYVILLE						
Tri-City Drlg (1968) Ltd	6	dsl	250	Failing 2500	210	3,000/3½"
BRAZEAU						
Peter Bawden Drlg Serv Ltd	15	dsl	1550	Unit U-40-D	800	12,000
Westburne Drlg (Canada) Ltd	10	dsl	1275	National 80	1275	13,000/5"
BRAZEAU RIVER						
Mustang Drlg	11	dsl	1200	National 55	1200	12,000
	18-UE		1800	National 80-UE	1000	14,000
BRETON						
Regent Drlg Ltd	1	dsl	320	Ideco H-40	280	7,500
BROWN CREEK						
Peter Bawden Drlg Serv Ltd	31	dsl	2300	OILWELL 96	1500	205
BRUCE						
Simmons Drlg Ltd	1	dsl	440	Hycalog HH-6000	440	7,000
CACHE CREEK						
Jomax Drlg Ltd	7	dsl-elec	2400	OILWELL 760	1600	5,000
CACTUS LAKE						
Westburne Drlg (Canada) Ltd	34	dsl	360	Ideco HD-25	360	4,500/3½"
CAROLINE						
Adeco Drlg & Engr Co Ltd	17		690	OIME S/L 750	1035	12,000
Cactus Drlg Corp Ltd	5	dsl	1554	Ideco Super 711	1554	15,000
Kenting Drlg Co Ltd	29	dsl	1040	National 610	1040	11,500
Mustang Drlg	15-E	dsl-elec	1600		1600	12,000
Regent Drlg Ltd	28	dsl	1400	Brewster N-75	1400	14,000
CARSON CREEK						
Peter Bawden Drlg Serv Ltd	1	dsl	1000	Emsco GB-500	500	8,500
CHINOOK RIDGE						
Regent Drlg Ltd	12-E	dsl	2200	Gardner-Denver 1500	2592	20,000
CLARESHOLM						
Kenting Drlg Co Ltd	23	dsl-elec	2000	National 610-E	1000	11,500
Nugget Drlg Ltd	5	dsl	2000	National 55-M	2000	12,000
CLAYHURST						
Peter Bawden Drlg Serv Ltd	20	dsl	1000	Gardner-Denver 500	500	9,000
COLD LAKE						
Simmons Drlg Ltd	7	dsl	440	Hycalog HH-6000	440	7,000
CONSORT						
Bow Island Drlg	10	dsl	278	Walker-Neer 2000	278	3,000/3½"
CRAIGMULE						
Cactus Drlg Corp Ltd	3	dsl	350	M-CSCO U-34	350	6,500
CUTBANK						
Kenting Drlg Co Ltd	31	dsl-elec	2000	National 110-UE	1000	14,000
CYN-PEM						
Cactus Drlg Corp Ltd	28	dsl	1200	Brewster N-75	1200	12,500
CZAR						
Tri-City Drlg (1968) Ltd	2	dsl	300	M-CSCO U-34	300	6,000
DIXONVILLE						
Kenting Drlg	28	dsl	700	National 370	700	9,000
DRUMHELLER						
Cactus Drlg Corp Ltd	1	dsl	750	Brewster N-55	750	8,500
Kenting Drlg Co Ltd	5	dsl	350	National T-20	350	5,500
ECKVILLE						
Westburne Drlg (Canada) Ltd	23	dsl	1050	National 50-A	700	8,500
EDGERTON						
Bow Island Drlg	1	dsl	278	Walker-Neer 2000	278	3,000/3½"
EDSON						
Guthrie McLaren Drlg Ltd	5	dsl	375	National 50-CA	400	8,500
Jomax Drlg Ltd	4	dsl	1200	OILWELL 76-700	1275	4,300
	6	dsl-elec	2400	OILWELL 760	1600	5,000
Regent Drlg Ltd	22	dsl	560	M-CSCO U-36-A	500	8,500
	25	dsl	1400	Brewster N-75	1400	14,000
Westburne Drlg (Canada) Ltd	11	dsl	1725	OILWELL 96	1725	20,000/5"
	5	dsl	1950	National 1320-M	1950	20,000/5"
ELMWORTH						
Mustang Drlg	8-E	dsl-elec	1600	National 610-E	1600	12,000
FAIRVIEW						
Kenting Drlg Co Ltd	24	dsl	350	National 370	350	9,000
FENNER						
Kenting Drlg Co Ltd	33	dsl-elec	1000	Superior 700-E	700	9,000
FERRIER						
Cactus Drlg	14	dsl	750	Emsco GB-500	750	8,000
	15	dsl	750	Emsco GC-350	750	6,500
	12	dsl	1554	National 80-B	1554	15,000
Mustang Drlg	10	dsl	652	Brewster N-45	326	8,500/4"
	17-E	dsl-elec	1600	National	1600	12,000
FORTY MILE						
Cactus Drlg Corp Ltd	8	dsl	350	M-CSCO U-34	350	6,500
FOX CREEK						
Jomax Drlg Ltd	1	dsl	800	OILWELL 52-T	455	2,750
FREDA LAKE						
Simmons Drlg Ltd	2	dsl	440	OILWELL 52-T	440	6,500
FT MCLEAD						
S & T Drlg (Northern) Ltd	5	dsl	1200	National 50-A	800	9,500
FT SASKATCHEWAN						
Simmons Drlg Ltd	8	dsl	440	Hycalog HH-600	440	7,000
GOLD CREEK						
Kenting Drlg Co Ltd	6	dsl	1500	Brewster N-85	1500	14,500
Mustang Drlg	16-UE	dsl-elec	2745	National 110-UE	2745	2,000/5"
GRANDE CACHE						
Regent Drlg Ltd	14-E	dsl	2800	OILWELL 840-E	1800	20,000
Westburne Drlg (Canada) Ltd	3	dsl	1560	OILWELL 860	1560	18,000/5"
	28	dsl	960	National 55	960	11,000
GRANDE PRAIRIE						
Argus Drlg Div of Taro Oilfield	4	dsl	319	M-CSCO U-34	327	6,000
Jomax Drlg Ltd	3	dsl	800	OILWELL 52-T	450	2,600
Kenting Drlg Co Ltd	14	dsl	1500	National 80-B	1500	14,500/5"
	15	dsl	720	National 370	720	8,000
	18	dsl	800	National 50-A	800	9,500/5"
Mustang Drlg	5	dsl	946	National T-45	620	9,000/4"
	6	dsl	1230	Emsco A-550	1230	12,000/4"
Nugget Drlg Ltd	1	dsl	1500	National 610	1000	12,000
	6	dsl	1000	National 55-M	1000	12,000
	7	dsl	1000	National 610	1000	12,000
S & T Drlg (Northern) Ltd	1-E	dsl	1100	National 5	1100	11,500
	6	dsl	1100	National 610	1100	11,500
HANNA						
Regent Drlg Ltd	29	dsl	300	Brewster N-4	365	6,000
HINTON						
Kenting Drlg Co Ltd	3	dsl	1000	Emsco GC-500	1000	12,000
	4	dsl	720	610	720	11,500
Regent Drlg Ltd	21	dsl	2200	OILWELL M-2000	2592	20,000
S & T Drlg Ltd	11	dsl	1300	Unit 20	1300	12,000
HOUSE MOUNTAIN						
Peter Bawden Drlg Serv Ltd	17	dsl	850	Gardner-Denver 500	500	9,000
HUGHENDEN						
Tri-City Drlg (1958) Ltd	3	dsl	250	Failing 2500	200	3,000/3½"
INNES FAIL						
Kenting Drlg Co Ltd	16	dsl	350	M-CSCO U-34	350	6,500
JONES						
Kenting Drlg Co Ltd	35	dsl	350	National T-12	330	5,000
JUMI						
Cactus Drlg Corp Ltd	25-E	dsl-elec	3400	Emsco C-2	2000	20,000

ALBERTA (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
KAKWA						
Cactus Drlg Corp Ltd	23	dsl	880	Emsco GC-500	880	11,500
Mustang Drlg	3	dsl	726	National T-45	620	9,000/4"
Westburne Drlg (Canada) Ltd	18	dsl	1680	Unit Rig U-914-C	1680	18,000/5"
KEHO						
Adeco Drlg & Engr Co Ltd	14	dsl	312	National T-32	320	7,200
KIRBY						
Simmons Drlg Ltd	50	dsl	440	M-CSCO	440	6,500
	51	dsl	440	M-CSCO	440	6,500
LAC LA BICHE						
Sedco Drlg Div of Bow Valley	71	dsl	240	Failing 2500	175	3,000/3½"
LAMONT						
Tri-City Drlg (1968) Ltd	8	dsl	300	Failing 3500	280	3,500/3½"
LATOR						
Westburne Drlg (Canada) Ltd	13	dsl	600	Emsco GA-350	600	8,000
LEDUC						
Regent Drlg Ltd	5	dsl	840	Brewster N-7	560	9,500
S & T Drlg (Northern) Ltd	9	dsl	800	National 370	800	8,500
LIMESTONE						
Peter Bawden Serv Ltd	12	dsl	1700	Emsco A-800-WE	1000	15,000/5"
LLOYDMINSTER						
Guthrie McLaren Drlg Ltd	12	dsl	325	Superior S-400	300	5,000
Sedco Drlg Div of Bow Valley	77	dsl	320	Failing 2500	240	3,000/3½"
Tri-City Drlg (1968) Ltd	4	dsl	300	Failing Stratmaster 90	280	5,000/3½"
MAJOR						
Adeco Drlg & Engr Co Ltd	12	dsl	312	National T-32	320	2,200
MARYBERRIES						
Cactus Drlg Corp Ltd	4	dsl	[illegible]	M-CSCO U-34	350	6,500
MAYERTHORPE						
Simmons Drlg Ltd	11	scr-elec	440	Hycalog HH-6000	440	6,500
MEDICINE HAT						
Bow Island Drlg	3	dsl	278	Walker-Neer 2000	278	3,000/3½"
	8	dsl	278	Walker-Neer 2000		3,000/3½"
MEDICINE LODGE						
Adeco Drlg & Engr Co Ltd	8	dsl	1500	National 100-M	2340	18,000
MERCOAL						
Peter Bawden Drlg Serv Ltd	14	dsl-scr	2600	National 1320-UE	2000	22,000/5"
MINBURN						
Bow Island Drlg	2	dsl	278	Walker-Neer 2000	278	3,000/3½"
MUDLAKE						
Cactus Drlg Corp Ltd	7	dsl	700	Emsco GB-350	700	8,500
MUSKEG						
Peter Bawden Drlg Serv Ltd	16	dsl	1800	Emsco D-3	1000	12,000
MYRNAM						
Westburne Drlg (Canada) Ltd	50	dsl	240	Failing 2500	180	3,000/3½"
NANTON						
Kenting Drlg Co Ltd	32	dsl-elec	3720	National 110-UE	2000	16,000
Regent Drlg Ltd	9	dsl	1400	Brewster N-75	1400	14,000
NISKU						
Bow Island Drlg	11	dsl-elec	300	Walker-Neer	1287	5,000
OBED						
Adeco Drlg & Engr Co Ltd	15	dsl	365	National T-45	575	10,500
Peter Bawden Drlg Serv Ltd	7	dsl	1200	National 55	700	11,500
OLDS						
Argus Drlg Div of Taro Industries Ltd		dsl	319	National T-32	327	7,000
PADDLE RIVER						
Adeco Drlg & Engr Co Ltd	16	dsl	308	National T-32	312	7,000
PATHER RIVER						
Regent Drlg Ltd	15-E	dsl	3200	Gardner-Denver 1500	2000	21,000
PEACE RIVER						
Westburne Drlg (Canada) Ltd	19	dsl	870	National T-32	360	7,500/4"
PEARCE						
Cactus Drlg Corp Ltd	2	dsl	940	National 55	940	11,500
PEM FINE						
Kenting Drlg Co Ltd	10	dsl	720	OILWELL 66	720	10,000
PEMBINA						
Mustang Drlg	2	dsl	1845	National 80-B	1845	15,000/5"
Peter Bawden Drlg Serv Ltd	21	dsl	2000	Emsco C-1	1500	18,000/5"
S & T Drlg Northern) Inc	3	dsl	1200	National 55	1200	11,500
PEMBINA (Contd)						
S & T Drlg (Northern) Ltd	4	dsl	600	National 50-CA	400	8,000
PINE CREEK						
Cactus Drlg Corp Ltd	21	dsl	900	Emsco GC-500	900	11,500
Peter Bawden Drlg Serv Ltd	26	dsl	1450	OILWELL 76	700	12,000/5"
PROVOST						
Simmons Drlg Ltd	10	dsl	440	M-CSCO U-34	440	6,000
Westburne Drlg (Canada) Ltd	39	dsl	310	Failing 3500	235	3,500/3½"
RED CAP						
Peter Bawden Drlg Serv Ltd	25	dsl-scr	2000	Emsco C-l Type II	1500	18,000/5"
RED EARTH						
Cactus Drlg Corp Ltd	24	dsl	300	Bethlehem 55	300	6,000
Guthrie McLaren Drlg Ltd	10	dsl	300	Dreco D-500	450	7,000/3½"
RETLAW						
Cactus Drlg Corp Ltd	9	dsl	350	M-CSCO U-34	350	6,500
RIMBEY						
Kenting Drlg Co Ltd	9	dsl	720	National T-32	720	7,500
Westburne Drlg (Canada) Ltd	24	dsl	360	National T-32	360	7,000
ROBB						
Adeco Drlg & Engr Co Ltd	9	dsl	2000	OIME Helihoist 1500	2000	17,000
ROCKY MOUNTAIN HOUSE						
Argus Drlg Div of Taro Industries Ltd		dsl	319	National T-32	327	8,000
Guthrie McLaren Drlg Ltd	9	dsl	1940	OIME 1500	1940	18,000/5"
Regent Drlg Ltd	10	dsl	780	Brewster N-7	560	9,500
Westburne Drlg (Canada) Ltd	15	dsl	900	Brewster N-7	600	8,500
SAKWA						
Cactus Drlg	17	dsl	500	Unit 34	500	6,500
SCHOOLER CREEK						
Peter Bawden Drlg Serv Ltd	8	dsl-elec	2200	OILWELL 860	1400	20,000/5"
SEDGEWICK						
Westburne Drlg (Canada) Ltd	7	dsl	350	Gardner-Denver 2500	170	3,500/3½"
SEVEN PERSONS						
Westburne Drlg (Canada) Ltd	21	dsl	360	National T-20	360	5,500/4"
SILVER VALLEY						
Regent Drlg Ltd	4	dsl	840	Brewster N-7	560	9,500
SIMONETTE						
Cactus Drlg Corp Ltd	22	dsl	1000	Emsco GC-500	1000	12,500
	29	dsl	500	Emsco GA-500		9,000
SLAVE LAKE						
Westburne Drlg (Canada) Ltd	8	dsl	360	Ideco H-40-D	360	7,000
SMOKEY RIVER						
Westburne Drlg (Canada) Ltd	4	dsl	1040	Emsco GC-500	1040	11,000/5"
	1	dsl	1560	National 80-B	1560	13,000/5"
SMOKY LAKE						
Bow Island Drlg	9	dsl	278	Walker-Neer 2000	278	3,000/3½"
Tri-City Drlg (1968) Ltd	7	dsl	250	Failing 2500	210	3,000/3½"
Westburne Drlg (Canada) Ltd	32	dsl	300	Failing 2500	210	3,000/3½"
SPRING COULEE						
Cactus Drlg Corp Ltd	10	dsl	700	National T-32	700	7,800
Kenting Drlg Co Ltd	8	dsl	350	Ideco H-20	350	5,000
ST PAUL						
Guthrie McLaren Drlg Ltd	8	dsl	300	Failing 2500-A	225	3,000/3½"
STETTLER						
Argus Drlg Div of Taro Oilfield	3	dsl	319	Mid-Cont Unit U-34	327	6,000
SUFFIELD						
Bow Island Drlg	6	dsl	278	Walker-Neer 2000	278	3,000/3½"
	7	dsl	278	Walker-Neer 2000	278	3,000/3½"
Westburne Drlg (Canada) Ltd	31	dsl	160	Failing 2500	275	3,000/3½"
	35	dsl	310	Failing 2500	160	3,000/3½"
	40	dsl	310	Failing 2500	175	3,000/3½"
SUNDRE						
Mustang Drlg	14-UE	dsl-elec	3000	National 1320-UE	3000	22,000/5"
S & T Drlg (Northern) Ltd	7	dsl	1200	National T-45	800	9,500

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
ALBERTA (Cont'd)						
SWAN HILLS						
Guthrie McLaren Drlg Ltd	2	dsl	300	Brewster N-4	300	6,500
	3	dsl	680	National 50-CA	600	10,000
Jomax Drlg Ltd	5	dsl	875	National JI-65	875	10,500
Westburne Drlg (Canada) Ltd	202-H	dsl	1150	National 4-10	1590	10,000
TABER						
Guthrie McLaren Drlg Ltd	7	dsl	300	National T-32	300	7,000/3½"
THREE HILLS						
Argus Drlg Div of Taro Oilfield	2	dsl	319	Emsco 250-T	327	6,500
S & T Drlg (Northern) Ltd	2	dsl	350	National T-32	350	7,000
	10	dsl	350	Unit 34	350	6,000
TWO HILLS						
Tri-City Drlg (1968) Ltd	1	dsl	250	Failing 2500	200	3,000/3½"
Westburne Drlg (Canada) Ltd	33	dsl	310	Failing 3500	160	3,500/3½"
VALLEYVIEW						
Regent Drlg Ltd	11	dsl	2200	OILWELL 840-E	2592	20,000
Sedco Drlg Div Bow Valley	80	dsl	375	Shaffer	350	6,000
	82		375	Superior 300	263	4,500
	81	dsl	375	Superior 400	318	5,000
Shelby Drlg Ltd	54-E	dsl-elec	1000	National 370-E	650	9,000
	8	dsl	1200	OIME 750-SL	1200	14,000
Westburne Drlg (Canada) Ltd	55	dsl-elec	3310	National 1320-UE	3310	22,000/5"
VERDIGRIS						
Cactus Drlg Corp Ltd	11	dsl	350	M-CSCO	350	6,500
VERGR						
Westburne Drlg (Canada) Ltd	38	dsl	310	Failing 2500	160	3,000/3½"
VERMILION						
Tri-City Drlg (1968) Ltd	5	dsl	250	Failing 2500	210	3,000/3½"
WAINWRIGHT						
Tri-City Drlg (1968) Ltd	9	dsl	300	Dreco 300	300	4,500
WASHAHIGAN						
Adeco Drlg & Engr Co Ltd	3	dsl	308	National T-32	320	1,985
WATERTON						
Regent Drlg Ltd	8	dsl	1800	Gardner-Denver 1100	2100	15,000
WEMBLY						
Cactus Drlg Corp Ltd	6	dsl	900	Cardwell AO	900	9,500
WHITE COURT						
Regent Drlg Ltd	24	dsl	840	Brewster N-7	560	9,500
WILD RIVER						
Cactus Drlg Corp Ltd	26-E	dsl-elec	2700	Emsco D-3	500	18,000
Westburne Drlg (Canada) Ltd	20	dsl	1950	M-CSCO U-1220-D	1950	20,000/5"
WILDHAY						
Kenting Drlg Ltd	27	dsl	1040	National 610	1040	11,500
WILSON CREEK						
Westburne Drlg (Canada) Ltd	9	dsl	520	National T-45	460	8,500
WINDFALL						
Kenting Drlg Co Ltd	11	dsl	1200	M-CSCO U-40	1200	14,000
	2	dsl	1200	M-CSCO U-40	1200	14,000
	7	dsl	720	Emsco GC-500	720	10,500
WISKEY						
Peter Bawden Drlg Serv Ltd	33	dsl	1850	OILWELL 860	1400	18,000/5"
ZAMA LAKE						
Guthrie McLaren Drlg Ltd	11	dsl	450	Dreco 500	450	7,000
BRITISH COLUMBIA						
UNDESIGNATED						
Baltic Drlg Ltd	12	dsl	525	National T-32	326	7,500
	25	dsl	475	National T-20	326	6,500/4"
Can-Tex Drlg & Expl Ltd	7	dsl	900	Emsco G-50052	900	10,000
Challenger Drlg	1	dsl	1200	Emsco GC-500	1010	12,000
	22	dsl	2000	National 110	1800	19,000/5"
	50	dsl	2000	National 110	1800	19,000/5"
	6-E	dsl-elec	1400	National 80-E	2250	14,500/5"
Garnett Drlg Ltd	8	dsl	300	OILWELL 52-T	400	6,000/4"
Hi Tower Drlg Div Bow Valley	12	dsl	570	National T-32	310	6,000
	14	dsl	370	OILWELL 52-T	280	6,500
	15	dsl	580	National T-32	310	[illegible]
	2	dsl	900	OILWELL 66	600	8,500
Loffland Bros Co	198	dsl	1400	M-CSCO U-914-A	1599	15,000
	3	dsl	1850	M-CSCO U-914-A	2880	18,000
	72	dsl	1700	M-CSCO U-914	2880	18,000
	9	dsl	2000	M-CSCO U-914	1980	20,000
Montgomery Drlg Canada Ltd	42	scr	1300	National 110-UE	1800	2,100
BRITISH COLUMBIA (Cont'd)						
UNDESIGNATED						
Montgomery Drlg Canada Ltd	43	scr	1000	National 110-UE	1800	2,100
	44	dsl	2000	OILWELL 96	2400	20,000/5"
	48	dsl	1500	National 110	2400	18,000/5"
Nabors Drlg Ltd	3	dsl	1700	OILWELL 76	1326	14,000
	6	dsl	300	Ideco H-35	300	6,000
	8	dsl	740	Emsco GA-500	770	8,500
Parker Drlg Co	122-HH/11	dsl	1500	OIME TBA-1500	1700	17,000
	94	dsl	1700	National 100-M	1500	18,000
Red Arrow Drlg Ltd	6	dsl	225	RAD 200	275	6,000
	8	dsl	225	RAD 200	275	6,000
	9		225	RAD 200	275	6,000
CAMERON						
Westburne Drlg (Canada) Ltd	14	dsl	1080	National 50-A	1080	9,500
CHETWYND						
Kenting Drlg Co Ltd	22	dsl-elec	2000	National 80-UE	1000	13,000
Mustang Drlg	7-UE	dsl-elec	2400	National 80-UE	2400	15,000/5"
FORT ST JOHN						
Adeco Drlg & Engr Co Ltd	1	dsl	308	National T-20	320	1,680
	6	dsl	1500	National 100-M	2340	18,000
Argus Drlg Div of Taro Industries Ltd		dsl	1100	OILWELL 76	750	12,500
Guthrie McLaren Drlg Ltd	1	dsl	300	OILWELL 52-T	400	7,000
Jomax Drlg Ltd	2	dsl	800	OILWELL 52-T	455	2,600
Regent Drlg Ltd	30	dsl	280	Brewster N-4	280	6,500
Westburne Drlg (Canada) Ltd	17	dsl	1080	Emsco GB-350	720	8,000
	22	dsl	1010	National 50-A	700	8,500/5"
	26	dsl	360	National T-32	360	7,000
GRIZZLY						
Mustang Drlg	9-UE	dsl-elec	2745	National 110-UE	2745	20,000/5"
MOBERLY						
Adeco Drlg & Engr Co Ltd	5	dsl	1380	OIME Helihoist 1500	2000	17,000
MONIAS						
Regent Drlg Ltd	26	dsl	280	Ideco H-40	280	7,500
	27	dsl	560	Brewster N-4	280	6,500
	3	dsl	840	Brewster N-7	560	9,500
FORT ST JOHN						
Guthrie McLaren Drlg Ltd	4	dsl	375	Dreco D-500	450	6,000
NIG						
Kenting Drlg Co Ltd	1	dsl	1500	National 80-B	1500	14,500/5"
OJAY						
Kenting Drlg Co Ltd	21	dsl-elec	2000	National 80-UE	1000	15,000/5"
OKOTOKS						
Mustang Drlg	4	dsl	1200	National 55	1200	12,000
SIERRA						
Regent Drlg Ltd	2	dsl	840	Brewster N-55	460	9,500
UNDESIGNATED						
Challenger Drlg	55	dsl	1700	National M-100-HD	1800	15,000/5"
WHITCOURT						
Nugget Drlg Ltd	8	dsl	1100	National T-45	600	10,000
MANITOBA						
UNDESIGNATED						
Sedco Drlg Div of Bow Valley	90	dsl	300	M-CSCO U-34-D	330	5,500
NORTHWEST TERRITORIES						
UNDESIGNATED						
Parker Drlg Co	99-HH/6	dsl	1500	OIME Helihoist 1500	1700	17,000
HAY RIVER						
Mustang Drlg	12	dsl	1845	National 80-B	1845	14,000
KING CHRISTEN ISLAND						
Adeco Drlg & Engr Co Ltd	4	dsl	1380	Helihoist 1500	2000	17,000
NORMAN WELLS						
Simmons Drlg Ltd	6	dsl	440	Hycalog HH-6000	440	7,000
YUKON						
Nabors Drlg Ltd	9	dsl	2000	National 110	2400	18,000/5"
ONTARIO						
LAMBTON						
Corunna Petr Ltd	2	dsl	475	Ideco 525	636	8,500
	3	dsl	950	Hopper GXXTA	700	5,500
QUEBEC						
FORT MACLEOD						
Regent Drlg Ltd	23	dsl	840	Brewster N-7	560	9,500

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
QUEBEC (Cont'd)						
RIVIERE DE LOUP						
Regent Drlg Ltd	6	dsl	1400	Brewster N-75	1400	14,000
SASKATCHEWAN						
UNDESIGNATED						
Bird Oil Equipment Ltd	2	dsl		Emsco 250	300	6,500
Precision Drlg Ltd	2	dsl	350	Ideco H-20-AD	350	4,500
Sarcee Drlg	7	dsl	250	Unit U-34	230	5,000
Sedco Drlg Div of Bow Valley	84	dsl	300	Superior 300	290	4,500
	85		300	Superior 300	290	4,500
	87	dsl	300	Cardwell Model L	350	4,500/3½"
	91	dsl	330	Emsco GB-250	360	6,500
	94	dsl	300	Cardwell Model L	280	4,500
	96	dsl	300	Ideco H-25 Double Drum	240	4,500
	98	dsl	330	National T-20	330	6,000
CATHKIN						
Bow Island Drlg	12	dsl-elec	300	Cabot 1287	450	5,000
SASKATCHEWAN (Cont'd)						
CLARESHOLM						
Mustang Drlg	1	dsl	930	Unit 36-A	800	8,500/4"
ESTEVAN						
S & T Drlg (Northern) Ltd	8	dsl	1500	National 610	1500	11,500
LASHBURN						
Bow Island Drlg	4	dsl	278	Walker-Neer 2000	278	3,000/3½"
	5	dsl	3000	Walker-Neer 2000	278	3½"
LLOYDMINSTER						
Guthrie McLaren Drlg Ltd	6	dsl	300	Failing 2500-A	225	3,000/3½"
PARKMAN						
Simmons Drlg Ltd	4	dsl	440	OILWELL 52-1	440	6,000
STEELMAN						
Simmons Drlg Ltd	3	dsl	440	M-CSCO U-34	440	6,500

International Rotary (Land) Drilling Contractors

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ARAB DRLG & WORKOVER CO P O Box 1401 Orange CA 92668 714-558-1300
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BAWDEN DRLG INC 4544 Post Oak Place Dr Houston TX 77027
BAWDEN DRLG INTL LTD JL LT Jen M T Haryond 58 Jakarta Selatan Indonesia 586603
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International Contract Rotary (Land) Drilling Rigs

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
AFRICA						
ALGERIA						
ALFOR	10	dsl-elec	1000	OILWELL 660	700	10,000
	5	dsl-elec	1000	OILWELL 660	700	10,000
	6	dsl-elec	1000	OILWELL 660	700	10,000
	7	dsl-elec	1000	OILWELL 660	700	10,000
	8	dsl-elec	1000	OILWELL 660	700	10,000
	9	dsl-elec	1000	OILWELL 660	700	10,000
	ALFOR I	dsl-elec	3400	OILWELL 2000	2000	20,000
	ALFOR II	dsl-elec	3400	OILWELL 2000	2000	20,000
	ALFOR III	dsl-elec	2800	OILWELL 840	2000	16,000
	ALFOR IV	dsl	1000	OILWELL 660	700	10,000
	ASH 12	dsl-elec	2800	OILWELL E-2000	2000	20,000
	ASH 13	dsl-elec	2800	OILWELL E-2000	2000	20,000
	ASH 14	dsl-elec	2800	OILWELL 840-E	2000	16,000
	ASH 15	dsl-elec	3200	Gardner-Denver 2100-E	2000	24,000
	ASH 16	dsl-elec	3200	Gardner-Denver 2100-E	2000	24,000
	ASH II	dsl-elec	2800	OILWELL E-200	2000	20,000
	ASH 17	dsl-elec	3200	OILWELL 840-E	2000	24,000
	ASH 18	dsl-elec	3200	OILWELL 840-E	2000	24,000
	ASH 19	dsl-elec	3200	OILWELL 840-E	2000	24,000
	ASH 20	dsl-elec	3200	OILWELL 840-E	2000	24,000
	ASH 21	dsl-elec	3200	OILWELL 840-E	2000	24,000
	ASH 22	dsl-elec	2000	OILWELL 840-E	2000	24,000
AFRICA (Cont'd)						
ALGERIA (Contd)						
FOREX Neptune &/or Affiliates	GD-1100/3	dsl-elec	3200	Gardner-Denver 1100	1500	18,000/5"
	GD-2100/5	dsl-elec	3200	Gardner-Denver 2100-RE	3000	25,400/5"
	S-7-11/20	dsl	2850	Ideco Super 7-11	1200	18,000/5"
	S-7-11/23	dsl	3200	Ideco Super 7-11	1200	18,000/5"
	GD-1500/3	dsl-elec	3200	Gardner-Denver E	2000	21,700/5"
Oilser Ltd	6	dsl-elec	2600	National 110-UE	1850	15,000
	8	dsl-elec	2600	National 110-UE	1850	15,000
Parker Drlg Co	129-HH/17	dsl	1500	OIME TBA-2000	1700	20,000
	133-HH/21	dsl	1500	OIME TBA-2000	1700	20,000
	140-HH/28	dsl	1500	OIME TBA-2000	1700	20,000
	144-HH/30	dsl	1500	OIME TBA-2000	1700	20,000
	145-HH/31	dsl	1500	OIME TBA-2000	1700	20,000
	146-HH/32	dsl	1500	OIME TBA-2000	1700	20,000
	154-HH/35	dsl	1500	OIME TBA-2000	1700	20,000
	155-HH/26	dsl	1500	OIME TBA-2000	1700	20,000
	156-HH/36	dsl	1500	OIME TBA-2000	1700	15,000
	160	dsl	1500	OIME TBA-2000	1700	20,000
SAIPEM	91	dsl-elec	3200	National 110-UE	1500	20,000
	92	dsl-elec	3200	National 110-UE	1500	20,000
	93	dsl-elec	3200	National 110-UE	1500	20,000
	94	dsl-elec	3200	National 110-UE	1500	20,000

AFRICA (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
ALGERIA (Contd)						
SAIPEM	95	dsl-elec	3200	National 110-UE	1500	20,000
Westburne Intl Drlg Ltd	208	dsl-elec	3975	Emsco C-1-11	1500	18,000
	209	dsl-elec	3975	Emsco C-1-11	1500	18,000
	207	dsl-elec	3975	National 110-UE	1500	18,000
	206	dsl-elec	3975	A-800-E	1500	18,000
EGYPT						
Egyptian Drlg Co	1	dsl		National 110-UE		16,000/5"
	2	dsl		Frank Cabot SD-2346		12,000
FOREX Neptune &/or Affiliates	N-110/7	dsl	3200	National 110	1600	19,000/5"
Santa Fe Drlg Co	64	dsl	1800	National 110	1800	16,000
	69	dsl-elec	2000	National 1320-DE	3400	20,000
	73	dsl	2000	National 110	1800	16,000
GABON						
Forasol	1	dsl-elec	1200	Ideco H-525	800	9,000
	5	dsl-elec	2600	National 110-UE	1850	15,000
LIBYA						
Arab Drlg and Workover Co	118	dsl	1250	Ideco H-525	700	9,000
	37	dsl	1550	National 80-B	1800	12,000
	53	dsl	1250	Ideco H-525	700	9,000
	54	dsl	1400	National 80-B	1800	12,000
Challenger Drlg	19	dsl	1400	National 80-B	1500	15,000
Deutsche Tiefbohr Deutag	T-26	dsl	2550	Ideco Super 7/11	1500	16,000
	T-16	dsl	2000	Emsco A-800	1000	12,000
FOREX Neptune &/or Affiliates	N-80-UE/2	dsl	2000	National 80-UE	1000	15,700/5"
	DS-1	dsl	1200	Ideco H-525	640	9,000/5"
	GD-1100/5	dsl-elec	3200	Gardner-Denver 1100-E	1600	1,800/5"
	N-110/6	dsl	2600	National 110	1600	19,000/5"
	N-80/3	dsl-elec	2000	National 80-UE	1000	15,700/5"
	S-7-11/13	dsl	2500	Ideco Super 7-11	1200	18,000/5"
	S-7-11/2	dsl	2600	Ideco Super 7-11	1600	18,000/5"
	S-7-11/24	dsl	3200	Ideco Super 7-11	1600	18,000/5"
	S-7-11/8	dsl	3200	Ideco Super 7-11	1200	18,000/5"
International Drlg Co SA	39	dsl-elec	2000	Ideco ED-1200	1200	12,000
	19	dsl	1200	National 55-P	1700	9,000
	23	dsl	1455	National 80-B	1455	12,000
	8	dsl	2000	National 110	2250	13,000
	18	dsl	1455	National 80-B	1455	12,000
	21	dsl	1200	National 55-P	1700	9,000
KCA Drlg Ltd	100	dsl	320	Cardwell KM-250	320	3,000
	101	dsl	300	Franks Sahara	320	3,000
	102	dsl	320	Franks Sahara	320	3,000
	103	dsl	320	Franks Sahara	320	2,000
	83	dsl-elec	1000	M-CSCO U-36-EA	1000	10,000
Loffland Bros Co	168	dsl	2300	M-CSCO U-914	2300	15,000
Oil Drlg & Expl Ltd	7	dsl	2000	Ideco Super 7-11	2000	17,000
	9	dsl	2000	Ideco Super 7-11	2000	17,000
Pool Intairdril	204	scr	2000	Ideco ED-1200	1000	12,000
	205	dsl	2000	Ideco ED-1200	1000	12,000
	206	scr	2000	Ideco ED-1200	1000	12,000
	10	dsl	318	Franks 1058/120	318	5,000
	2	dsl	318	Franks 1287/120	476	5,000
	3	dsl	318	Franks 1287/120	476	5,000
	32	dsl	600	Cabot 750	600	6,500
	33	dsl	600	Cabot 750	600	6,500
	34	dsl	600	Cabot 750	600	6,500
	5	dsl	318	Franks 1058/120	318	5,000
NIGERIA						
FOREX Neptune &/or Affiliates	GB-250/5	dsl	750	Emsco GB-250	250	7,200/5"
	GD-2100/3	dsl-elec	3200	Gardner-Denver 2100-RE	3000	25,400/5"
	H-20	dsl	225	Ideco H-20	180	3,600
	H-525/4	dsl	1200	Ideco H-525	500	9,000
	N-110/10	dsl	2600	National 100	1600	19,000/5"
	N-110/4	dsl	2850	National 110	1600	19,000/5"
	N-110/5	dsl	2600	National 110/5	1600	19,000/5"
	N-110/11	dsl-elec	3200	National 110-UE	1500	19,000/5"
	S-7-11/19	dsl	2600	Ideco Super 7-11	1200	18,000/5"
	S-7-11/22	dsl	2600	Ideco Super 7-11	1200	18,000/5"
	S-7-11/26	dsl	2600	Ideco Super 7-11	1200	18,000/5"
Parker Drlg Co	197-HH/43	dsl	2000	OIME TBA-2000	2000	20,000
SAIPEM	38	dsl	2500	Ideco P Super 7-11	1590	16,500
	47	dsl	2130	Ideco P Super 7-11	1375	16,500
	50	dsl	1135	Ideco P H-40	432	4,800
	60	dsl	2500	Ideco P Super 7-11	1590	16,500
Sedco Intl SA	59	dsl	2800	OILWELL 860	2200	16,000
SOMALIA						
Parker Drlg Co	143	dsl	2000	National 110	3300	20,000
SUDAN						
Parker Drlg Co	105-HH/2	dsl	1200	OIME	1275	14,000
	119-HH/10	dsl	1500	OIME	1700	18,000
TUNISIA						
FOREX Neptune &/or Affiliates	GD-1100/6	dsl-elec	3200	Gardner-Denver	1600	1,800/5"
Oilser Ltd	7	dsl-elec	2600	National 110-UE	1850	15,000
SAIPEM	42	dsl	2250	Ideco P Super 7-11	1740	16,500
	46	dsl	2250	Ideco P Super 7-11	1740	16,500

AFRICA (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
TUNISIA (Contd)						
Santa Fe Drlg Co	75	dsl	2000	National 1320-M	1800	20,000

AUSTRALIA

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
AUSTRALIA						
Pool-Intairdril	216	dsl		Wilson Super 38		3,400
Richter Drlg Pty Ltd	2	dsl	900	National 55	900	10,000
GILES						
Pool-Intairdril	17	dsl	100	Schramm	200	1,000
NEWMAN						
Pool-Intairdril	18	dsl	110	Schramm T-64-HB	275	
ODLEDA						
Pool-Intairdril	14	dsl	100	Schramm	200	1,000
PERTH						
Pool-Intairdril	11	dsl	235	Gardner-Denver 1000	235	1,000
	8	dsl	300	Gardner 15-W	300	1,500
QUEENSLAND						
Oil Drlg & Expl Ltd	12	dsl	1000	National 50	600	8,500
	8	dsl	350	Ideco H-35	500	4,500
Richter Drlg Pty Ltd	1	dsl	338	Sullivan 300-A	171	3,500
	7		1600	National 610	750	10,000
SOUTH AUSTRALIA						
Oil Drlg & Expl Ltd	10	dsl	1600	Ideco 1200	1600	14,000
	5	dsl	1100	Ideco Jr Super 7-11	1100	1,300
	6	dsl	1200	National 55	850	10,000
Richter Drlg Pty Ltd	10	dsl-elec	1500	National 110-UE	1500	17,000
	3	dsl	600	National T-32	300	5,500
UNDESIGNATED						
Pool-Intairdril	9	dsl	420	Franks Expl 1058-160	420	5,000
WESTERN AUSTRALIA						
Oil Drlg & Expl Ltd	15	dsl	2000	Ideco H-1700	2000	17,000
Richter Drlg Pty Ltd	4	dsl	600	National T-32	300	6,000
	9	dsl	2400	National 80-B	1600	12,000

CENTRAL AMERICA

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
COSTA RICA						
Foramines	4	dsl	850	Ideco H-525	700	25,000
EL SALVADOR						
Foramines	2	dsl	650	Emsco GB-250	500	28,000
	5	dsl	450	Fred Cooper TD-420-10	350	18,000
GUATEMALA						
Bawden Drlg Inc	5	dsl	2000	National 110-M	1500	18,000
Helmerich & Payne Intl Drlg Co	16	dsl-elec	1600	HS-2000	2000	18,000
	10	dsl-elec	1600	HS-2000	1500	18,000
Parker Drlg Co	185-HH/40	dsl	2000	OIME TBA-2000	2000	20,000

EUROPE

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
BELGIUM						
Foramines	1	dsl	1200	Emsco GB-800	800	36,000
	3	dsl	850	Salzgitter FB-415	740	27,000
	9	dsl	140	Salzgitter PS-150	160	400
DENMARK						
Deutsche Tiefbohr AG Deutag	T-1	dsl	490	Ideco BIR-800 H-1000	910	8,000
	T-14	dsl	2400	Emsco A-800	1000	14,000
FRANCE						
COSIFOR	E-350	dsl	1500	Emsco 350	550	9,000
	N-110	dsl	2500	National 110	1500	18,000
Foramines	8	dsl	250	Foramines RC-15	320	1,000
Forasol	1	dsl	1200	National 80-B	1850	12,000
	1	dsl		Ideco H-25	200	5,000
	1	dsl-elec	2600	Gardner-Denver 2100	2000	20,000
	1	dsl-elec	500	Ideco H-35	300	5,000
	1	dsl-elec	3200	National 1320-UE	2000	20,000
	2	dsl	2700	National 110	1850	15,000
	2	dsl	500	Emsco 160	250	4,000
	3	dsl-elec	3600	National 1625-DE	2400	20,000
FOREX Neptune &/or Affiliates	1100/1	dsl-elec	2900	Emsco 1100-DE	1500	18,000/5"
	800/2	dsl	2000	Emsco A-800	800	12,000/5"
	GC-500/1	dsl	1100	Emsco GC-500	500	10,800/5"
	H-25/2	dsl	375	Ideco H-25	250	4,400
	H-40/2	dsl	500	Ideco H-40	500	9,000
	H-525/3	dsl	1200	Ideco H-525	500	9,000
	N-55/2	dsl	1300	National 55	700	10,800
GERMANY						
Deutsche Tiefbohr AG Deutag	T-3	dsl	490	Ideco H-44-CD	590	5,000
	T-29	dsl-elec	2300	National 1320-ME	2000	18,000
	T-12	dsl	490	Ideco H-525-D	620	6,000
	T-2	dsl	490	Ideco H-525-D	620	6,000

EUROPE (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
GERMANY (Contd)						
Deutsche Tiefbohr AG Deutag	T-4	dsl	500	Ideco H-30	425	6,000
	T-9	dsl	490	Ideco BIR-800 H-1000	910	8,000
	T-34	dsl	1650	Ideco BIR-800	950	8,000
	T-36	dsl	1650	Ideco BIR-800	950	8,000
	T-5	dsl	490	Ideco H-525-D	620	6,000
	T-7	dsl	1400	National 55	700	11,000
	T-8	dsl	490	Ideco BIR-800 H-1000	910	8,000
ITAG-CELLE	1	dsl	500	Wilson Mogul 42	600	9,500
	110-M	dsl	2600	National 110-M	1500	18,000
	2	dsl	1350	Wilson Mogul 42	250	8,000
	5	dsl	1600	Wilson Mogul 42	700	10,500
	ZA-312	dsl	500	SMG	250	4,500
Preussag Aktiengesellschaft	1	dsl	1100	Cabot Franks Model 2346	900	10,000
	2	dsl	1500	Cabot Franks Model 2346	900	10,000
	ZA-292	dsl	500	Salzgitter Maschinen AG	180	5,000
	GH-25	dsl	2600	Wirthoo GH-25	1500	16,000
	GH-35	dsl	2600	Demag GH-35	1500	17,500
ICELAND						
Orkustofnun State Drlg Contrs	DOFRI	dsl	1350	OILWELL 52-T	320	7,300
	GLAUMUR	dsl	290	Failing 2000	290	3,700/2⅞"
	JOTUNN	dsl-elec	1500	Gardner-Denver 700-E	750	145
	NARFI	dsl	580	Failing 3000	290	6,000/3½"
	YMIR	dsl	180	Mayhew 1000	180	1,800/2⅞"
ITALY						
Forasol	2	dsl-elec	1600	National 80-UE	1000	12,000
	3	dsl-elec	2600	National 80-UE	1000	12,000
Pool-Intairdril	211	scr	1300	Ideco 1700	2000	17,000
	212	scr	1300	Ideco 1200	1000	12,500
SAIPEM	3	dsl	1400	Ideco H-7-11	885	11,400
	36	dsl	2600	Ideco P 1350-S	1950	20,000
	44	dsl	109	Ideco P H-30	295	3,590
	52	dsl-elec	880	Ideco E-525	625	1,800
	56	dsl	1700	Ideco P Jr Super 7-11	1740	12,600
	58	dsl	1135	Ideco P H-40	432	4,800
	5898	dsl-elec	2600	Ideco HE-1700	1700	16,500
	6	dsl	440	Cardwell 02	590	8,100
	64	dsl-elec	2900	Emsco C-3 Type 2 Por	3000	25,000
	72	dsl-elec	2600	National 1625	3000	25,000
	87	dsl-elec	3200	National 1625	3000	25,000
	88	dsl-elec	3200	National 1625	3000	25,000
	89	dsl	3200	Ideco E-3000	3000	30,000
	99	dsl	1400	Cardwell 03	1050	10,400
NETHERLANDS						
Deutsche Tiefbohr AG Deutag	T-32	dsl	380	Ideco BIR-3085 H-35-KD	300	3,000
	T-11	dsl	1700	National 30-B	1000	13,000
	T-19	dsl	2000	National 80-BE	1000	13,000
	T-30	dsl-elec	1000	Ideco E-725-D	600	6,000
	T-27	dsl-elec	2600	National 130	1625	16,000
PORTUGAL						
Foramines	6	dsl	280	Failing 2500	240	1,000
	7	dsl	350	Ideco H-25	350	15,000
SPAIN						
Compania Gen De Sondeos SA	110	dsl	3000	National T-2029	1700	19,700
	800	dsl	2400	Gardner-Denver	1470	14,800
	G-450	dsl	1050	Emsco G-450	450	10,000
Forasol	2	dsl-elec	3200	National 1320-UE	2000	20,000
	2	dsl-elec	3200	National 1625-DE	2000	20,000
	3	dsl-elec	3200	National 1320-UE	2000	20,000
UNITED KINGDOM						
Boldon Drlg Ltd	21	dsl	370	National T-20	290	4,500
	22	dsl	590	National T-20	335	5,500
	23	dsl	350	National T-20	280	4,000
	25	dsl	150	Failing 2500	260	2,500/3½"
	32	dsl	590	National T-32	500	7,000
	80	dsl-elec	800	National 80-UE	1000	14,000
FOREX Neptune &/or Affiliates	S-7-11/14	dsl	2200	Ideco Super 7-11	1200	18,000/5"
Houlder Marine Drlg Ltd	1	dsl-elec	1600	National 80-UE	1000	12,000
KCA Drlg Ltd	104	dsl		Franks 550	320	5,000
Kenting (UK) Ltd	12	dsl	350	Brewster N-45	350	8,000
	17	dsl	350	Stratmaster 90	350	5,000/3½"
	19	dsl	350	Gardner-Denver 3000	230	4,500/4"
	26	dsl	350	Cardwell TR-69	350	6,000

MEXICO

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
GUADALAJARA						
Construction Y Per Latina	PR-20	dsl		Failing 2500	160	2,500

MEXICO (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
GUADALAJARA						
Constructora Y Per Latina SA	PC-5	dsl		Bucyrus Erie 36 LD-53	150	1,700
	PR-12	dsl		Failing 2500	160	2,500
	PR-9	dsl	165	Failing 1500	134	1,500
HIDALGO						
Constructora Y Per Latina SA	PT-17	dsl	1020	Emsco GA-500	500	6,500
	PT-18	dsl	1020	Emsco GB-500	500	6,500
MEXICO						
Constructora Y Per Latina SA	PT-16	dsl	1020	M-CSCO U-10	260	5,000
	PC-26	dsl		Walker-Neer FWN-40	80	1,700
	GT-34	dsl	1000	Emsco GB-800	1000	12,000
	PT-19	dsl	1100	Emsco J-750	750	9,500
	PC-30	dsl		Stenvic AS-5		300
	PR-11	dsl		Failing 2500	160	2,500
	PR-13	dsl		Failing 2500	160	2,500
	PC-29	dsl		Walker-Neer FWN-40	80	1,700
	GT-33	dsl	1000	Emsco GB-800	1000	12,000
	PC-25	dsl		Walker-Neer FWN-40	80	1,700
	PC-27	dsl		Walker-Neer FWN-40	80	1,700
	PC-3	dsl		Walker-Neer S-32-SP	110	1,700
	PC-20	dsl		Bucyrus Erie 36 LD-53	150	1,700
	PP-1	dsl		Walker-Neer WS-31	80	1,700
	PP-4	dsl		Walker-Neer S-32-SP	110	1,700
	PR-10	dsl		Failing 1500	180	[illegible]
	PR-21	dsl		Failing 2500	160	[illegible]
	PR-7	dsl	308	Failing 1500	150	1,500
	PS-14	dsl	308	Emsco 250 Perlasa	250	3,000
	PS-15	dsl	308	Wagner-Morehouse M-41-AZ	180	3,000
	PS-31	dsl	308	Wagner-Morehouse M-41-AZ	180	3,000
	PP-2	dsl		Walker-Neer S-32-SP	125	1,700
Perforadora Mexico SA	Reforma	dsl-elec	5000	National 1625-DE	3000	25,000
	Revolucion	dsl-elec	5000	National 1625-DE	3000	25,000
	8	dsl-elec	2000	National 1320-UE	2000	2,600
PUEBLA						
Constructora Y Per Latina SA	PR-32	dsl		Failing 2500	160	2,500
	PC-28	dsl		Walker-Neer FWN-40	80	1,700
VILLAHERMOSA						
Perforadora Mexico SA	7	dsl-elec	2000	National 1320-UE	2000	2,600

MIDDLE EAST

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
ABU DHABI						
FOREX Neptune &/or Affiliates	GD-1100/4	dsl-elec	3200	Gardner-Denver 1100	1500	18,000/5"
	N-80-4	dsl-elec	1000	National 80-UE	1000	15,700/5"
Geoprosco Intl Ltd	35	dsl	375	Cardwell K-250-M	475	6,000
	36	dsl	600	Ideco H-900	725	10,000
	39	dsl		Ideco H-30	475	7,000/3½"
	40	dsl		Ideco H-30	475	7,000/3½"
	41	dsl	2200	Ideco H-900	1100	10,000
	42	dsl-elec	700	Ideco ED-900	1000	10,000
	43	dsl-elec	700	Ideco ED-900	1000	10,000
National Drlg Co	1	dsl-elec	3000	OILWELL E-840	1500	17,500
	2	dsl-elec	3000	OILWELL E-840	1500	17,500
Pool-Intairdril	213	scr	900	Ideco 900	1000	10,500
	214	scr	900	Ideco 900	1000	10,500
	215	scr	900	Ideco 900	1000	10,500
Westburne Intl Drlg Ltd	212	dsl-elec	5300	National 110-UE	1500	18,000
	213	dsl-elec	5300	National 110-UE	1500	18,000
	210	dsl-elec	5300	National 1320-UE	1500	20,000
BANGLADESH						
Pe[illegible] Drlg Co	195-HH/42	dsl	2000	OIME TBA-2000	2000	20,000
DUBAI						
Sedco Intl SA	95	dsl-elec	2800	National 1320-UE	4950	20,000
IRAN						
Pool Intairdril Ltd	21	dsl	318	Franks 1287/120	476	5,000
	24	dsl	600	Cabot 750	650	7,500
	25	dsl	600	Cabot 750	650	7,500
	26	dsl	600	Cabot 750	650	7,500
	27	dsl	600	Cabot 750	650	7,500
SAIPEM	37	dsl	2600	Ideco P 1350-S	1950	20,000
Santa Fe Drlg Co	96	dsl-elec	2800	OILWELL E-2000	1500	20,000
	98	dsl-elec	2800	OILWELL E-2000	2000	20,000

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
MIDDLE EAST (Cont'd)						
IRAQ						
FOREX Neptune &/or Affiliates	GD-1100/2	dsl-elec	3200	Gardner-Denver 1100	1500	18,000/5"
	GD-2100/4	dsl-elec	3200	Gardner-Denver 2100-RE	3000	25,400/5"
	GD-2100/21	dsl-elec	3200	Gardner-Denver	2300	25,400/5"
	GD-2100/22	dsl-elec	3200	Gardner-Denver 2100	2300	25,400/5"
	H-525/9	dsl	1000	Ideco H-525	500	9,000
	S-7-11/15	dsl	3200	Ideco Super 7-11	1200	18,000/5"
SAIPEM	48	dsl	2600	Ideco P Super 7-11	1740	16,500
	49	dsl	2600	Ideco P Super 7-11	2100	16,500
	55	dsl	1800	Ideco P Jr Super 7-11	1740	12,600
	5863	dsl-elec	2800	OILWELL E-2000	2000	20,000
	63	dsl-elec	3200	National 110-UE	1500	20,000
	70	dsl-elec	3200	National 1625	3000	25,000
Westburne Drlg (Canada) Ltd	214	dsl-elec	2900	National 110-UE	1500	18,000
KUWAIT						
Arab Drlg & Workover Co	ADWOC-2	dsl-elec	2600	Emsco C-111	1500	20,000
	ADWOC-3	dsl-elec	2600	Emsco C-111	1500	20,000
Kuwait Drlg Co	KDC-5	dsl-elec	1700	Gardner-Denver 800-E	800	12,000
	KDC-7	dsl-elec	1700	Gardner-Denver 800-E	800	12,000
	KDG-6	dsl-elec	5100	OILWELL E-3000	3000	30,000
Parker Drlg Co	189	dsl-elec	3200	OIME 3000-E	3000	30,000
OMAN						
Deutsche Tiefbohr AG	T-33	dsl	1600	National 55	700	11,000
	T-18	dsl	2600	National 55	700	11,000
	T-17	dsl-elec	2700	National 1320	1800	18,000
FOREX Neptune &/or Affiliates	1200	dsl	1800	Ideco Junior 1200	1400	16,500/5"
Sedco Intl SA	[illegible]	dsl-elec	2100	National 80-B	1100	12,000
	76	dsl	2000	OILWELL 760	1000	12,000
PAKISTAN						
Sedco Intl SA	96	dsl	2000	OILWELL 860	2200	16,000
QATAR						
Deutsche Tiefbohr AG Deutag	T-6	dsl	490	Ideco BIR-800 H-1000	910	8,000
Santa Fe Drlg Co	89	dsl-elec	2000	National 110-UE	1800	16,000
	91	dsl-elec	2000	National 110	3300	16,000
	93	dsl	1700	National 80-B	3300	12,000
RAS AL-KHAYMAH						
Santa Fe Drlg Co	97	dsl-elec	2800	OILWELL E-2000	1500	20,000
SAUDI ARABIA						
International Drlg Co SA	37	dsl-elec	2000	Ideco ED-1200	1200	13,000
Pool Arabia Ltd	15	dsl	420	Ideco DIR-550	420	6,500
	190	dsl	550	Pool	700	7,500
	191	dsl	550	Pool	700	7,500
	201	dsl	1400	OILWELL	1000	3,000
	202	dsl	1400	OILWELL	1000	12,000
	203		1400	OILWELL	1000	12,000
	23	dsl	300	Ideco H-40	450	8,000
	29	dsl	420	Franks Expl 1058	420	6,000
	40	dsl	600	Cabot 700	600	6,500
	128	dsl	230	Franks Expl III	450	6,500
	138	dsl	450	Cabot	450	6,500
Pool-Intairdril	22	dsl	400	Ideco DIR-550	400	6,500
Santa Fe Drlg Co	101	dsl-elec	2600	National 110-UE	1500	16,000
	102	dsl-elec	2400	National 110-UE	1500	16,000
	104	dsl-elec	3400	National 110-UE	1500	16,000
	109	dsl-elec	2000	National 110-UE	1800	16,000
	67	dsl-elec	2400	National 1320-DE	3400	20,000
	70	dsl-elec	2000	National 1320-DE	3400	20,000
	90	dsl-elec	2000	National 1320-DE	2000	20,000
	92	dsl-elec	2800	National 1320-UE	1400	20,000
	93	dsl-elec	1700	National 80-UE	700	12,000
	94	dsl-elec	2250	National 110-UE	2000	16,000
	99	dsl-elec	2800	OILWELL E-2000	1500	20,000
SHARJAH						
Sedco Intl SA	97	dsl	2700	OILWELL 860	2200	16,000
SYRIA						
Continental Drlg & Dev	1	dsl	1000	National 80-S	1400	10,000
Parker Drlg Co	194-HH/41	dsl	2000	OIME TBA-2000	2000	20,000
TURKEY						
Aladdin-Middle East Ltd	1	dsl	1285	Bethlehem M-58	1000	12,000
KCA Drlg Ltd	71	dsl	2580	National 80-B	1540	12,000
SOUTH AMERICA						
ARGENTINA						
Astrafor SAIC	1	dsl	1500	Emsco GC-350	800	10,000
	2	dsl	1500	Emsco GC-358	800	10,000
	3	dsl	1600	Emsco G-500	1000	12,000
	4	dsl	1500	Emsco GC-350	800	10,100
	6	dsl	1400	Ehideco BIR-800	800	8,000
SOUTH AMERICA (Cont'd)						
ARGENTINA (Contd)						
Astrafor SAIC	8	dsl	1600	Emsco A-80	1000	12,000
	9	dsl	1400	Ideco BIR-800	800	8,000
Beta Drlg Inc	29	dsl	1000	Ideco H-40	500	6,500
Bridas SADIC	8	dsl	1650	Emsco A-800	1650	14,000
	11	dsl	1000	Emsco GC-350-T	600	8,500
	13	dsl	1000	Emsco GC-350-T	600	8,500
	23	dsl	1800	National 100	1000	18,000
	25	dsl	1250	National N-75	750	10,000
	27	dsl	1250	National N-75	750	11,500
	33	dsl	1500	Gardner-Denver 800	1000	12,000
	34	dsl	1000	Ideco H-40	500	6,500
	37	dsl	2550	Brewster N-95	2550	20,000
	39	dsl	1600	Gardner-Denver 800	1000	15,000
	52	dsl	900	Cardwell T-250	500	7,500
	53	dsl	900	Cardwell T-250	500	7,500
	54	dsl	900	Cardwell T-250	500	7,500
	55	dsl	900	Cardwell T-250	500	7,500
	56	dsl	600	Ingersoll Rand T-5	200	3,000
	7	dsl	1250	M-CSCO U-36-A	700	10,000
	9	dsl	1000	M-CSCO U-36-A	600	9,000
	Rio Colorado 1			National 1320-UE		20,000
	3	dsl	1250	M-CSCO U-36-A	700	10,000
Navier Perez Companc	37	dsl	1400	Cardwell KB-210	350	5,900
	42	dsl	1600	Gardner-Denver 700		10,000
	1	dsl	1400	Cardwell J-450	700	6,900
	2	dsl	1400	Cardwell J-450	700	6,900
	28	dsl	1600	Gardner-Denver 800	1050	12,000
	29	dsl	1600	Gardner-Denver 700	700	10,000
	3	dsl	1400	Cardwell J-450	700	6,900
	4	dsl	1400	Cardwell J-450	700	6,900
	5	dsl	1400	Cardwell KM-250	350	5,900
	6	dsl	1400	Cardwell KM-250	350	5,900
RBI Drlg Ltd	30	dsl	2700	National 110	3075	18,000
	31	dsl	2700	National 110	3075	18,000
SAIPEM	45	dsl	109	Ideco PH-30	295	3,590
	51	dsl-elec	114[illegible]	Ideco E-525	625	1,800
	5830	dsl-elec	26[illegible]0	National 1320	2000	16,500
	5873	dsl	700	Ideco H-37/S	650	4,000
	5884	dsl		Ideco Pignone M-20-S	760	
	5896	dsl	2000	Ideco H-1200	1200	12,000
	66	dsl	440	Ideco PH-40	400	4,800
	67	dsl	1000	Ideco PH-40	400	4,800
	68	dsl	440	Ideco PH-40	400	4,800
	69	dsl	440	Ideco PH-40	400	4,800
	71	dsl-elec	2600	National 1625	3000	25,000
	77	dsl	400	Ideco PH-30	280	3,590
	78	dsl	400	Ideco PH-30	280	3,590
	79	dsl	440	Ideco PH-40	400	4,800
	80	dsl	1000	Ideco PH-40	400	4,800
	82	dsl		Ideco PM-20	160	
	83	dsl		Ideco PM-20	160	
BOLIVIA						
Helmerich & Payne CA	11	dsl-elec	1600	HS-1500	1500	18,000
	9	dsl-elec	1600	HS-1500	1500	18,000
BRAZIL						
Astrafor SAIC	5	dsl	1600	Emsco A-800	1500	14,000
	7	dsl	1600	Emsco A-800	1500	14,000
Compania Navier Perez Co	45		2600	Ideco 1700-E	1700	15,200
Naviera Perez Co	36	dsl	1600	Gardner-Denver 800	1050	12,000
	45	dsl-elec	2600	Ideco E-1700	1700	15,200
Parker Drlg Co	132-HH/20	dsl	1500	OIME TBA-2000	1700	20,000
	134-HH/22	dsl	1500	OIME TBA-2000	1700	20,000
	151-HH/34	dsl	1500	OIME TBA-2000	1700	20,000
COLOMBIA						
Bowden Drlg Inc	4	dsl-scr	2000	National 80-BE	1000	14,000
Helmerich & Payne De Colombia	7	dsl-elec	1200	HS-1500	1500	18,000
Parker Drlg Co	104	dsl	1400	National 50-A	1275	10,000
	110-HH/9	dsl	1500	OIME	1700	17,000
	158	dsl	1[illegible]00	National 80-B	1700	15,000
	80	dsl	2900	National 130	2900	25,000
Pool America Inc	208	dsl	2000	OIME	1000	12,000
	209	dsl	2000	OIME	1000	12,000
	210	dsl	400	Wilson DD-42-428	450	3,000
Pool-Intairdril	207	dsl	300	Pool 400	400	
ECUADOR						
Helmerich & Payne De Ecuador	12	dsl-elec	1600	HS-2000	1500	18,000
Parker Drlg Co	102-HH/1	dsl	1200	OIME	1275	12,500
	159	dsl	2200	OILWELL 76	1560	15,000
Pool America Inc	126	dsl	230	Wilson Mogul 42	450	6,500
PERU						
Belco Petr Corp of Peru	5	dsl	1000	DH-4610-38 Sky Top	1000	12,000

SOUTH AMERICA (Cont'd)

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
PERU (Contd)						
Belco Petr Corp of Peru	2	dsl	1000	Skytop H-4210	700	6,000
	3	dsl	1000	National 55	700	9,000
	4	dsl	1000	National 80-B	1000	12,000
	6	dsl	1000	DH-4610 Skytop	1000	12,000
Blocker Intl	23	dsl	550	Ideco H-37	456	7,000
	21	dsl	550	Ideco H-37	456	7,000
	22	dsl	550	Ideco H-37	456	7,000
	24	dsl	550	Ideco H-37	456	7,000
Parker Drlg Co	107-HH/4	dsl	1200	OIME	1700	15,000
	108-HH/5	dsl	1500	OIME	1700	17,000
	109-HH/7	dsl	1500	OIME	1700	17,000
	127-HH/15	dsl	1500	OIME TBA-2000	1700	20,000
	131-HH/19	dsl	1500	OIME TBA-2000	1700	20,000
VENEZUELA						
Helmerich & Payne CA	1	dsl	500	Cardwell M-250	300	6,000
	2	dsl	500	Cardwell M-250	300	6,000
	28	dsl	1500	National 110	1500	18,500
	30	dsl	1200	Ideco H-525	1200	10,000
	31	dsl	1200	Ideco H-525	1000	10,000
	4	dsl	500	Cardwell M-250	300	6,000
	6	dsl	300	Ideco H-44	400	12,000/3½"
	67	dsl	1500	National 110	1500	16,000
	5	dsl	700	Ideco 525	300	7,000
Helmerich & Payne Intl Drlg Co	3	dsl	600	Ideco H-37	400	7,000
Loffland Bros Co	61	dsl	500	Ideco H-525	566	6,500
	62	dsl	480	Ideco H-525	566	6,500
	14	dsl	700	M-CSCO U-36-A	785	9,000
	24	dsl-elec	2000	National 100-E	2000	14,000
	41	dsl	2000	M-CSCO U-914-C	2000	20,000
	54	dsl-elec	2900	M-CSCO U-1220-EB	3300	28,000
	68	dsl-elec	3200	M-CSCO U-1220-EB	3300	28,000
	94	dsl-elec	2000	M-CSCO U-20-E	1900	16,000
Santa Fe Drlg Co	110	dsl-elec	2000	National 80-DE	2000	20,000
	115	dsl-elec	2000	National 1320-DE	3400	20,000
	117	dsl-elec	2800	OILWELL E-2000	2000	20,000
	119	dsl-elec	2800	OILWELL E-2000	2000	20,000
	125	dsl	800	Hopper GXTA	450	6,000
	15	dsl	800	Ideco 525	600	9,000
	16	dsl	600	National T-32	250	5,000
	17	dsl	350	Franks Expl	250	5,000
	18	dsl	900	Emsco GA-500	700	9,000
	2	dsl	1700	National 130	1800	20,000
	20	dsl	800	Ideco H-40-D	350	7,000
	21	dsl	1200	U-914-B	1800	20,000
	22	dsl	350	Ideco H-35	350	5,000
	24	dsl	350	Ideco H-35	350	5,000
	3	dsl	350	Wagner-Morehouse M-41	350	5,000
	8	dsl	2200	National 130	1800	20,000
	9	dsl	1850	National 130	1800	20,000

SOUTHEAST ASIA

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
BRUNEI						
Deutsche Tiefbohr AG Deutag	T-31	dsl	1000	Wilson	850	8,000
INDONESIA						
Bawden Drlg Inc	9	scr	3200	National 1320-UE	2000	22,000
Bawden Drlg Intl Ltd	28	dsl	925	Emsco GB-350	350	7,200
	29	dsl-elec	1400	National 80-BE	1000	12,000
	6	dsl	1000	National T-45	550	7,500
Loffland Bros Co	300	dsl	600	M-CSCO U-34	500	4,000
	56	dsl	900	M-CSCO U-36-A	900	10,000
	139	dsl	1400	M-CSCO U-36	900	10,000
O'Connor & Young Drlg Co	801	dsl	1600	National 610	850	12,000
Parker Drlg Co	106-HH/3	dsl	1200	OIME	1275	14,000
	115-HH/8	dsl	1500	OIME	1700	18,000
	125-HH/13	dsl	1500	OIME	1700	18,000
	126-HH/14	dsl	1500	OIME TBA-2000	1700	20,000
	130-HH/18	dsl	1500	OIME TBA-2000	1700	20,000
	153/187	dsl-elec	3200	OIME 3000-E	2000	24,000
	168	dsl-elec	3200	Emsco C-2	2000	24,000
	188-HH/38		2000	OIME TBA-2400	2000	24,000
	190-HH/39	dsl	1500	OIME TBA-2000	1700	20,000
Westburne Intl Drlg Ltd	216-H	dsl	1200	Howard Turner MT-38-H	400	5,000
	217-H	dsl	1200	Howard Turner MT-38-H	400	5,000
	205-H	dsl	600	T-12 Modified West Helihoist G	250	5,000
NEW ZEALAND						
Republic Mineral Corp	1	dsl	500	Failing 2500	160	2,500
PHILIPPINES						
Richter Drlg Pty Ltd	6	dsl	1800	National 100	1800	14,000
	8	dsl	1800	National 110-M	1800	14,000

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
THAILAND						
Parker Drlg Co	200-HH/44	dsl	2000	OIME TBA-2000	2000	20,000
YEMEN						
Deutsche Tiefbohr AG Deutag	T-10	dsl	2700	National 80-B	1000	13,000

WEST INDIES

Contractor	Rig No.	Type Power	Total HP All Main Mud Pumps	Drawworks Make and Model	Total HP Available to Drwwks	Rated Depth with 4½" Pipe
TRINIDAD						
Skinner Drlg Contractor	14	dsl	325	Ideco H-25	171	3,500
	15	dsl	90	Cabot-Franks 1287-120 DTD	180	6,500/2⅞"
	16	dsl	180	Cabot-Franks 1287-120 DTD	240	15,200/2⅞"
	7	dsl	325	Ideco H-20	171	2,500
	17	dsl	1100	OILWELL 660	840	9,000
Well Serv Ltd	9	dsl-elec	2000	National 1320-UE	2000	20,000
	1	dsl	1400	National T-45	650	8,000
	2	dsl	1200	Gardner-Denver 500-M	650	9,000
	4	dsl	1000	M-CSCO U-34	600	4,000

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5. Settling an Estate
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ROTARY LAND DRILLING RIGS FORM

CONTRACTOR ______

HEADQUARTERS ADDRESS ______ Date: ______

______ (ZIP CODE FOP U.S.) ______

NAME/TITLE ______ PHONE ______

Rig. No or Name	Type Power (Diesel, Gas, Gasoline)	Primary Mud Pump Make & Model	Secondary Mud Pump Make & Model	Total HP to Mud Pumps	Drawworks Make and Model	Total HP Available To Drawworks	Rated Depth With 4½ In. Pipe	PRESENT LOCATION	
								County or Area	State and Country

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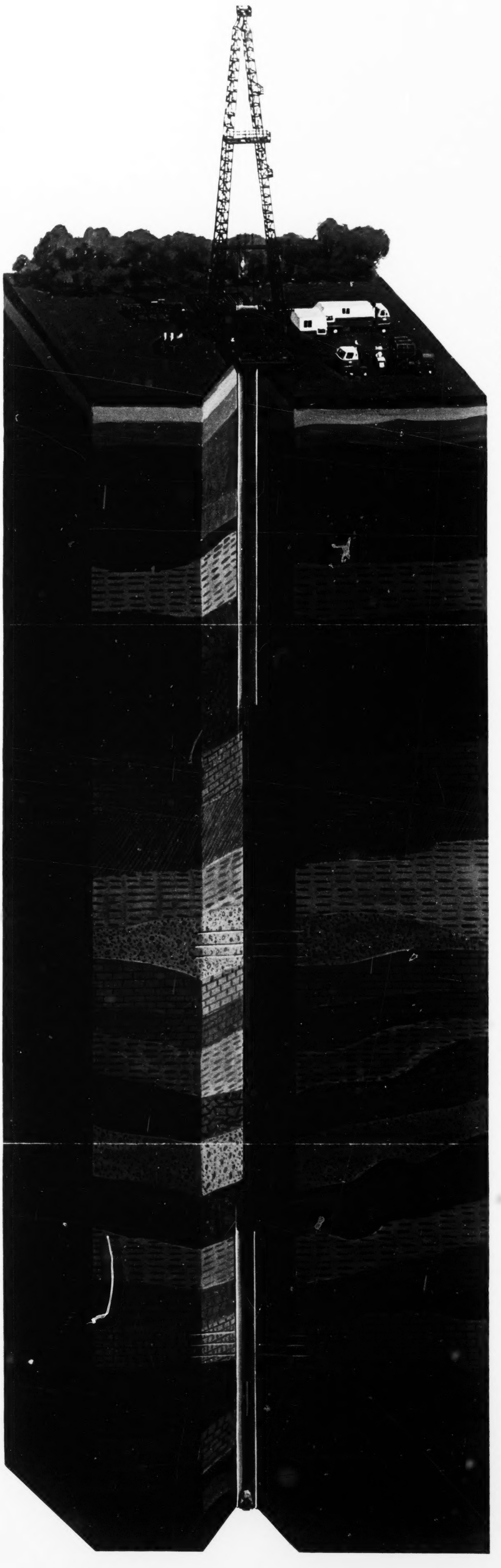

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1980 U.S. Deep drilling 859 Deep wells

LAKE SUPERIOR
LAKE MICHIGAN
LAKE HURON
LAKE ONTARIO
LAKE ERIE
OKLAHOMA

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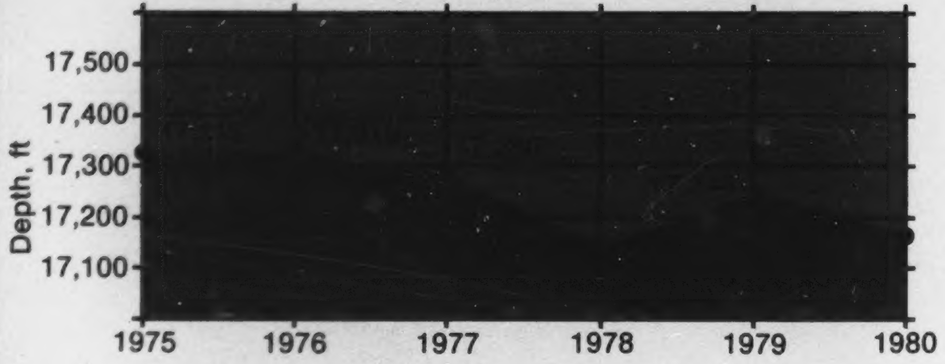
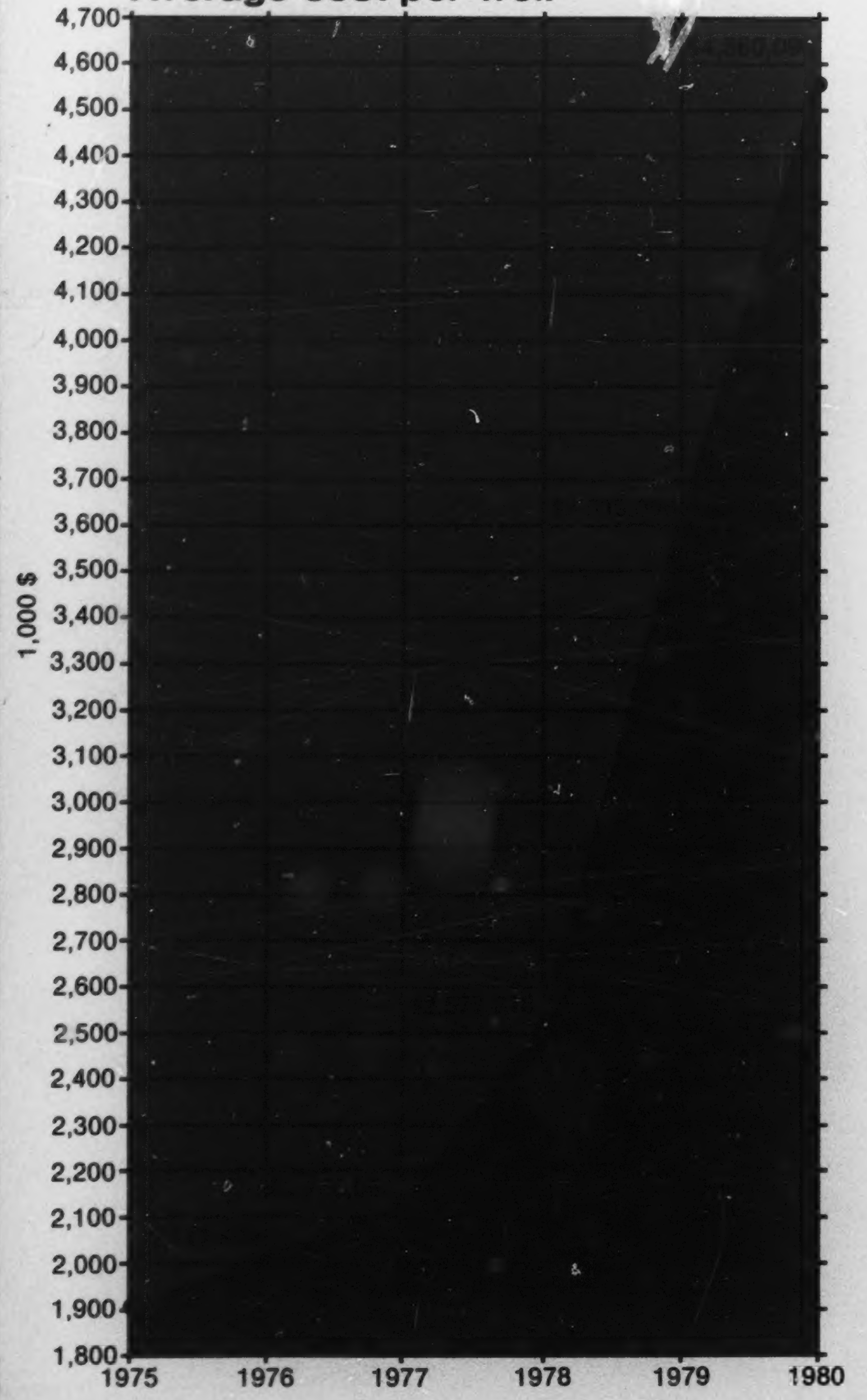
Based on PETROLEUM ENGINEER INTERNATIONAL'S Annual Deep Well Survey

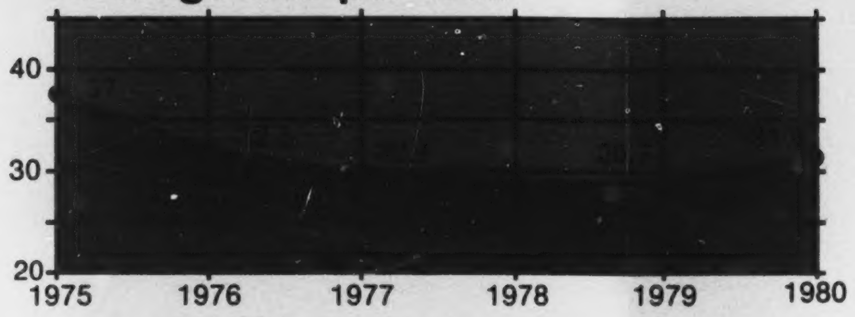
Average well depth



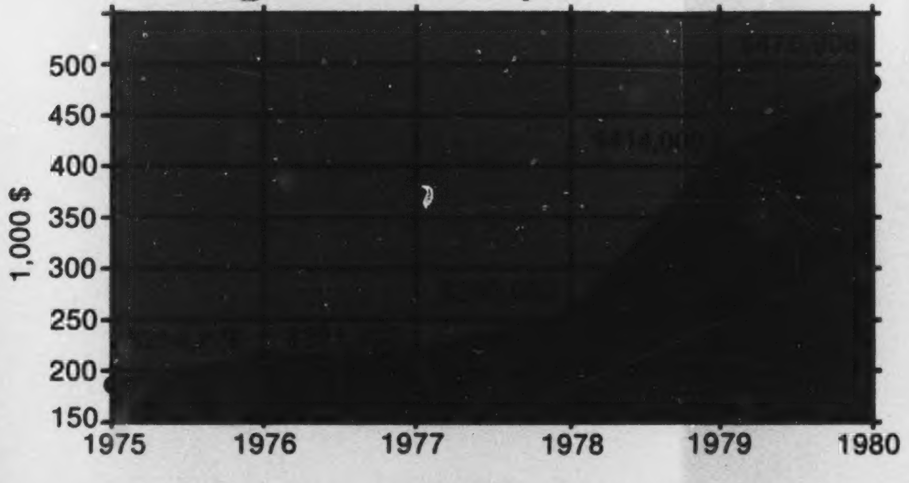
Average cost per well



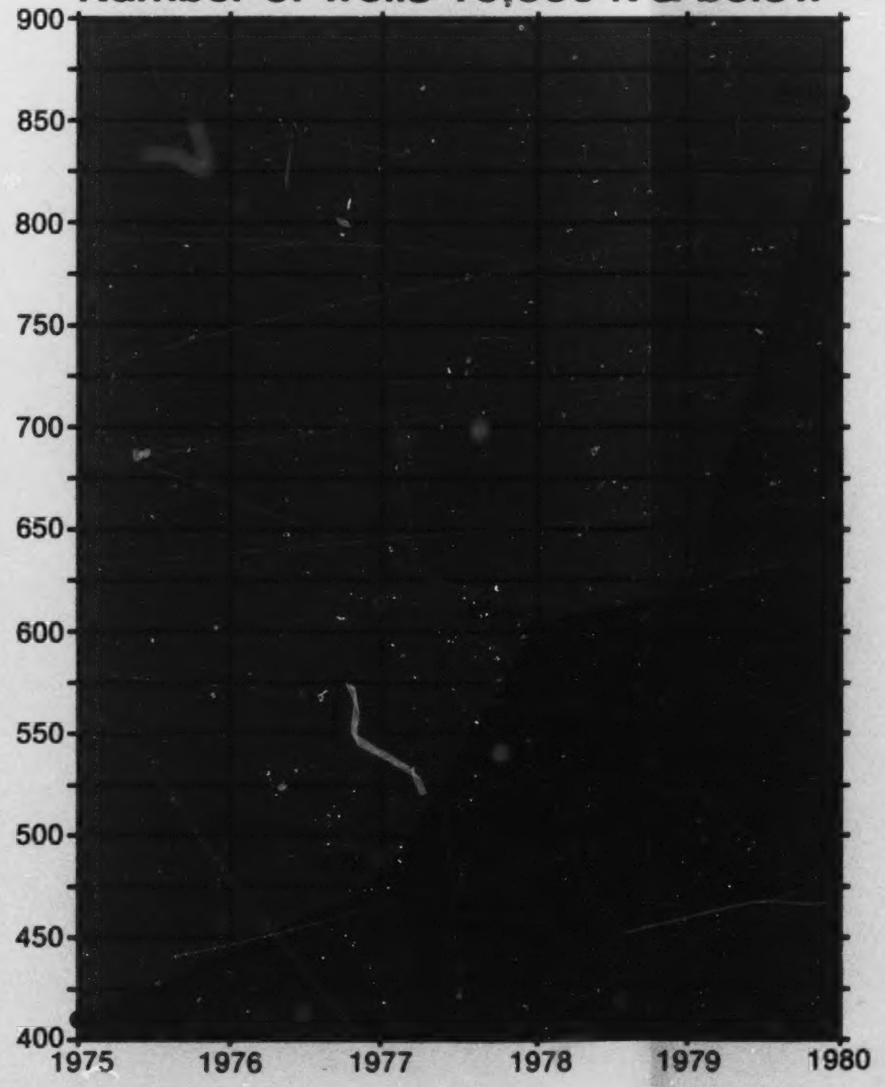
Average bits per well



Average mud cost per well



Number of wells 15,000 ft & below



DEEP WELL OPERATORS

Adobe Oil & Gas Corp.
Aikman Petroleum Inc.
Alliance Exploration Corp.
Amarex Inc.
Amax Petroleum Corp.
Amerada Hess Corp.
American Natural Gas Production Co.
American Public Energy Co.
American Quasar Petroleum Co.
American Trading and Production Corp.
Amoco Production Co.
Anadarko Production Co.
Andover Oil Co.
A.N.R. Production Co.
The Anschutz Corp.
An-Son Corp.
Apache Corp.
Arkla Exploration Co.
ARCO Oil and Gas Co., a Division of Atlantic Richfield Co.
Belco Petroleum Corp.
Bledsoe Energy Corp.
Borden Inc.
Border Exploration Co.
Bradco Oil & Gas Co.
BTA Oil Producers
Bunker Exploration Co.
Campbell Energy Corp.
C & K Petroleum Inc.
Cashco Energy Corp.
Champlin Petroleum Co.
Chevron USA Inc.
CIG Exploration Co.
Cities Service Co.
CNG Producing Co.
CNR Resources Inc.
Dalton H. Cobb
Cockrell Corp.
Conoco Inc.
Cotton Petroleum Co.
V. Monta Currie Jr.
Daleco Resources
Damson Oil Corp.
Davis Oil Co.
The Dow Chemical Corp.
Dyco Petroleum Corp.
Eaton Operating Co.
Eberly & Meade
Eldorado Gas Co.
Elf Aquitaine Oil and Gas
El Paso Exploration Co.
Energy Development Corp.
Ennex Inc.
Enserch Exploration Inc.
Entex Petroleum Inc.
ETS Enterprises
Exchange Oil & Gas Corp.
Exxon Co. U.S.A.
First Energy Corp.
Florida Exploration Co.
Flynn Energy Corp.
Forest Oil Corp.
Forman Exploration Co.
L. R. French Jr.
Gadsco Inc.
General American Oil Co.
Getty Oil Co.
GHK Corp.
Gifford, Mitchell & Wisenbaker
Goldking Production Co.
Grace Petroleum Co.
Green Exploration
Gulf Oil Corp.
Riley Hagan
Hamilton Brothers Oil Co.
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Helmerich & Payne Inc.
Highland Resources Inc.
A. G. Hill
Hilliard Oil & Gas Inc.
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Kilroy Co. of Texas Inc.
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Ladd Petroleum Corp.
Lear Petroleum Corp.
LGS Exploration Inc.
The Louisiana Land & Exploration Co.
McCormick Oil & Gas Corp.
McMoRan Exploration Co.
McMoRan Offshore Exploration Co.
McRae Exploration Inc.
Mack Oil Co.
Maddox Energy
Mallard Exploration Inc.
Marathon Oil Co.
Marion Corp.
Marline Oil Corp.
M. H. Marr
Tom F. Marsh Inc.
Martin Exploration Co.
Maynard Oil Co.
Mesa Petroleum Co.
D. A. Metts
Mid-American Oil Co.
Midroc Oil Co.
Mitchell Energy Corp.
Mobil Oil Corp.
W. A. Moncrief
Monsanto Co.
Moran Exploration Inc.
Moore McCormack
Mosbacher Production Co.
MRT Exploration Co.
Louis Mullen
Murphy Oil Corp.
Napeco Inc.
Natomas North America Inc.
Nicklos Oil & Gas Co.
Northern Natural Gas Co.
Nova Energy Corp.
Ocean Production Co.
Odessa Natural Corp.
Fred Olsen Inc.
Oxy Petroleum Inc.
Patrick Petroleum Co.
PCX Corp.
Pel-Tex Oil Co. Inc.
C. B. Pennington
Pennzoil Co.
The Petroleum Corp. of Delaware
Phillips Petroleum Co.
Pioneer Production Corp.
Placid Oil Co.
Pogo Producing Co.
Pruet Production Co.
Pursue Energy Corp.
Quintana Petroleum Corp.
Rainbow Resources
Reading & Bates Petroleum Co.
Reserve Oil Co.
Rosewood Corp.
Samedan Oil Corp.
Sanguine Ltd.
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Search Drilling Co.
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Signal Petroleum
Donald C. Slawson
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Sonat Exploration Co.
Southland Royalty Co.
South Louisiana Production Co.
Southport Exploration Inc.
The Stone Oil Corp.
Strata Energy Inc.
Sun Co.
Sunrise Exploration
The Superior Oil Co.
System Fuels Inc.
John A. Taylor
R. C. Taylor
Tenneco Oil Exploration & Production Co.
Terra Resources Inc.
Texaco Inc.
Texas Crude Inc.
Texas Gas Exploration Corp.
Texasgulf Inc.
Texas Oil & Gas Corp.
Texas Pacific Oil Co.
Tiger Oil Co.
Tipperary Corp.
Tomlinson Interests Inc.
Transco Exploration Co.
Traver Oil Co.
Trigg Drilling Co.
Tri-Service Drilling Co.
Union Oil Co. of California
Union Texas Petroleum Corp.
Universal Resources
Wainoco Oil & Gas Co.
Wagner & Brown
Weaver Oil and Gas Corp.
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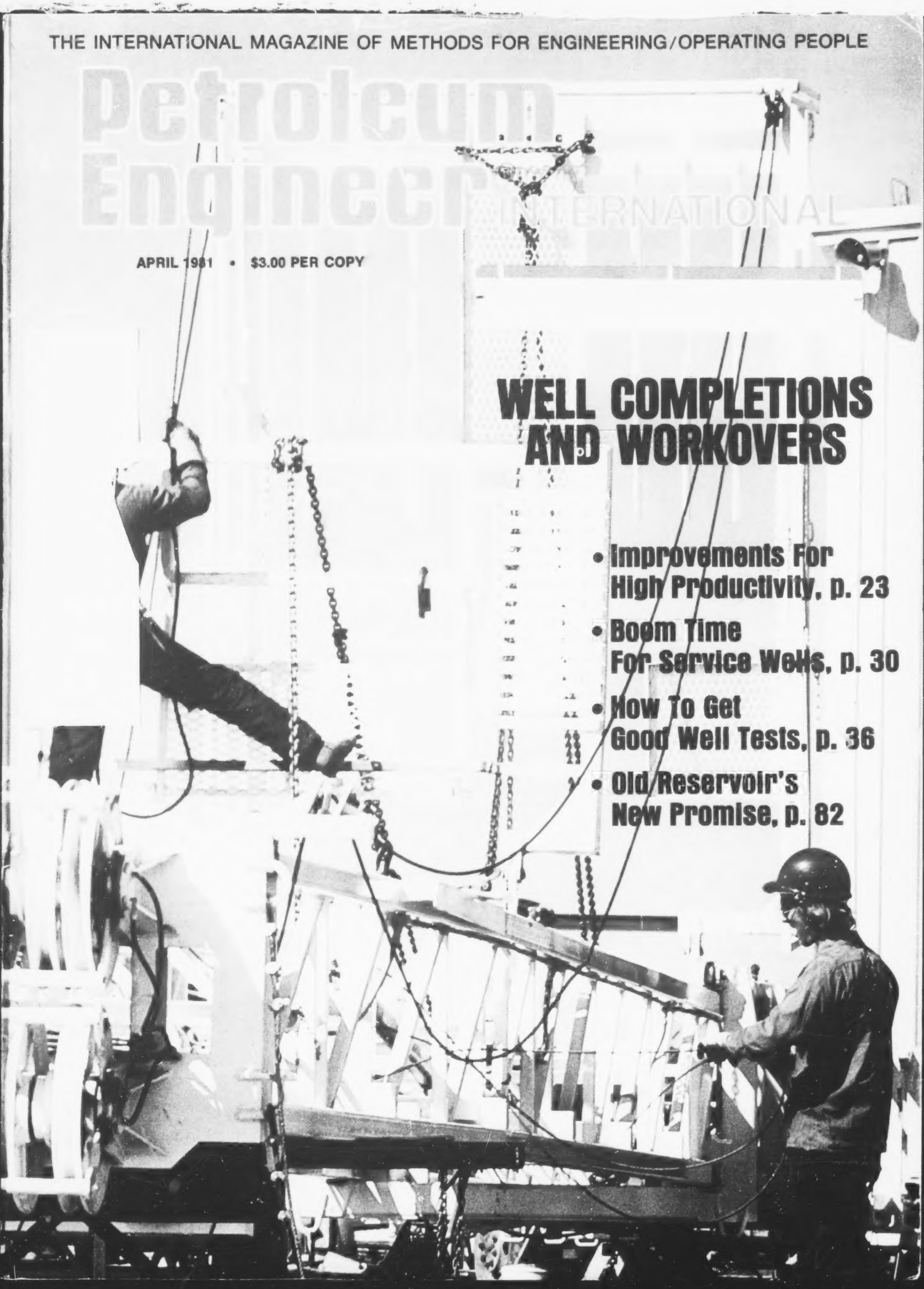

WELL COMPLETIONS AND WORKOVERS

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- Boom Time For Service Wells, p. 30
- How To Get Good Well Tests, p. 36
- Old Reservoir's New Promise, p. 82

Canadian Activity Still At Record Levels

Say what you will about Canada's new energy proposals and the discouraging influence they are having on Prairie Province oil and gas activity, but Canadian drillers came in like a lion last month to tie the country's all-time rig count high of 464 active rigs set last August 11.

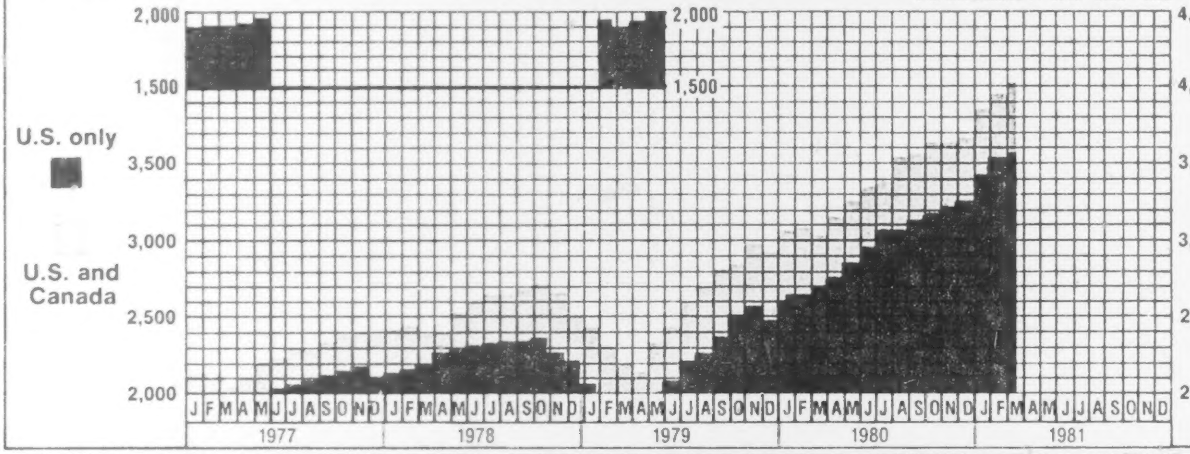
Much of this activity, of course, can be traced to contracts signed before Ottawa unleashed its budget proposals last October, but the fact remains that Canadian drillers are averaging almost 20 more active rigs this year than they did during 1980's record pace of 403 rigs active each week.

The true test, of course, will come during the spring thaw, which is almost upon us. It will be interesting to see if Canadian drillers return to work after the ground hardens, or if they will have folded their masts and silently slipped away.

Rotary Rigs Actually Making Hole In United States & Canada

As Reported to International Association of Drilling Contractors by Hughes Tool Company

	Feb. 16, 1981	Feb. 23, 1981	March 2, 1981	March 9, 1981
Alabama	15	14	12	11
Alaska				
Land	24	24	26	27
Offshore	1	1	1	1
Arkansas	28	26	28	31
Arizona	1	1	1	1
California				
Land	122	121	122	119
Offshore	19	19	19	19
Total	141	140	141	138
Colorado	69	66	66	65
Florida	8	8	8	9
Hawaii	1	1	1	1
Idaho	3	4	4	4
Illinois	30	30	30	30
Kansas	178	181	181	185
Kentucky	4	4	3	3
North Louisiana	53	54	55	50
South Louisiana				
Inland Waters	75	77	77	79
Land	173	161	155	159
Offshore	133	140	141	148
Total	434	432	428	436
Maryland	1	1	1	1
Michigan	27	32	34	34
Mississippi	69	69	69	72
Montana	81	78	75	79
Nebraska	10	11	11	10
Nevada	6	5	5	5
New Mexico	127	121	122	136
New York	6	6	8	7
North Dakota	102	99	104	110
Ohio	96	99	91	71
Oklahoma	569	581	584	596
Pennsylvania	34	36	35	35
Rhode Island				
Land	1	1	1	0
Offshore	2	2	2	2
South Dakota	3	3	5	3
Tennessee	0	3	2	2
Texas				
Offshore	73	70	67	78
Dist. 1	61	59	64	57
Dist. 2	42	51	49	51
Dist. 3	223	222	231	230
Dist. 4	124	116	115	112
Dist. 5 & 6	142	140	142	143
Dist. 7B	79	80	73	72
Dist. 7C	82	82	85	82
Dist. 8	153	158	163	145
Dist. 8A	72	73	74	81
Dist. 9	80	83	89	89
Dist. 10	47	46	50	51
Total	1178	1180	1202	1191
Utah	70	67	68	69
Virginia	1	1	1	1
Washington	1	1	1	1
West Virginia	34	34	33	27
Wyoming	173	174	185	172
Total U.S.	3529	3534	3568	3566
Western Canada	433	420	461	449
Eastern Canada	4	4	3	3
U.S. and Canada	3966	3958	4032	4018



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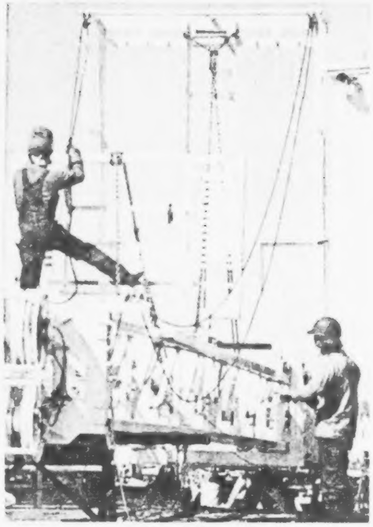

ABOUT THE COVER: The well servicing industry is a major participant in today's high rate of oilfield activity, and rig fleets are being expanded to keep up with the pace. Cover photo shows part of a new rig being put together by Pool Well Servicing Co., which is expanding its fleet by more than a third this year.

NEXT MONTH: The annual Offshore Technology issue in May is timed to coincide with the big Offshore Technology Conference being held in Houston May 4 to 7.

ENERGY management report™

by Ernestine Adams

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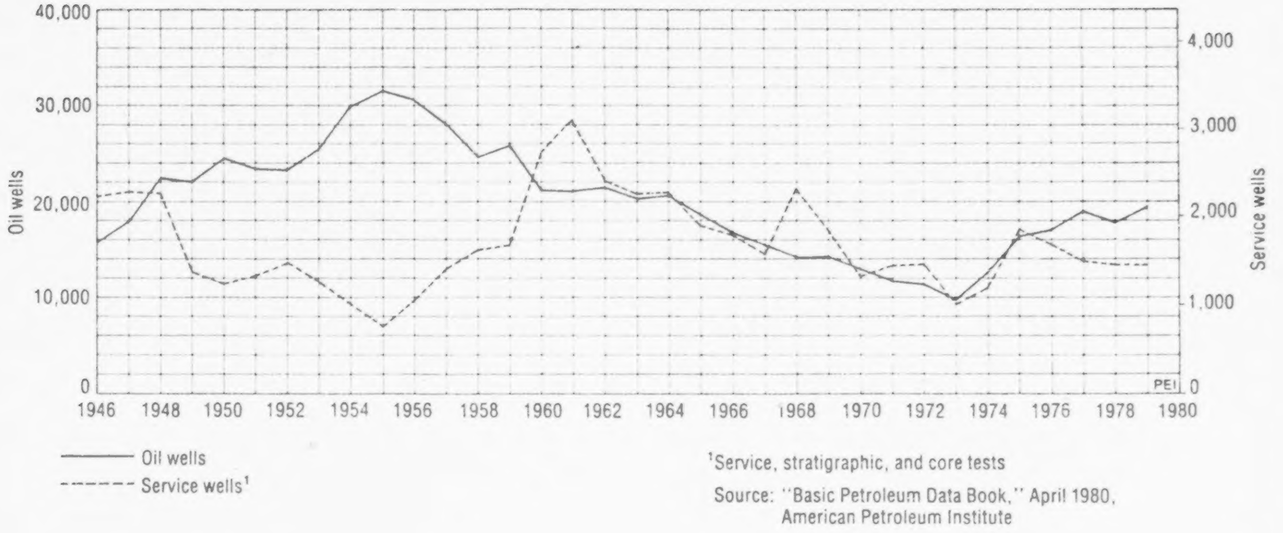

[1] Service, stratigraphic, and core tests

Source: "Basic Petroleum Data Book," April 1980, American Petroleum Institute

Fig. 1. Oil and service well completions.

Get Ready For The Service Well Boom

by W.B. Bleakley, *Editor*

The surging number of active drilling rigs forecasts a record number of producing well completions for 1980. The final total, when the numbers come in, will be impressive. The same is predicted for 1981.

What these numbers do not reflect is the even more impressive demand that results for service wells. These wells are the ones needed to inject liquids and gases in enhanced recovery schemes and to provide source water. By extrapolating historical data, it has been determined that a latent demand developed between 1976 and 1980 for these wells. If historical trends hold, this demand represents 4,000 new service wells and 12,000 conversions from producing to service status.

This means that many rigs now drilling development wells or exploratory holes will be reassigned to drilling service wells, or the slack will be taken up by some of the new rigs under construction.

It will also mean a surge in the demand for the well servicing industry, as pumps are pulled, perforations are cleaned, and new downhole equipment is installed in the 12,000 converted wells.

Several Forces

The rationale behind these predictions is based on the several forces at work which combine to indicate a surge in service well completions.

One of these forces is past performance. Table 1 shows the number of oil wells and the number of service wells drilled in the years between 1962 and 1976. It also shows the total number of wells and service wells as a percentage of the total. This per-

TABLE 1. Oil and service wells compared

Year	Wells drilled Oil	 Service	 Total	Service wells, % of total
1962	21,249	2,400	23,649	10.15
1963	20,288	2,267	22,555	10.05
1964	20,620	2,273	22,893	9.93
1965	18,761	1,922	20,683	9.29
1966	16,780	1,810	18,590	9.74
1967	15,329	1,584	16,913	9.37
1968	14,331	2,315	16,646	13.90
1969	14,368	1,866	16,234	11.49
1970	13,020	1,347	14,367	9.38
1971	11,858	1,449	13,307	10.89
1972	11,306	1,464	12,770	11.46
1973	9,902	1,010	10,912	9.26
1974	12,784	1,195	13,979	8.55
1975	16,408	1,862	18,270	10.19
1976	17,059	1,690	18,749	9.01
			Average	10.18

TABLE 2. Service well shortfall

	Wells drilled			Service wells		
Year	Oil	Service	Total	% of total	Needed to meet 10.18% avg	Shortfall
1977	18,912	1,497	20,409	7.33	2,143	646
1978	17,775	1,456	19,231	7.57	2,014	558
1979	19,383	1,447	20,830	6.95	2,196	749
1980*	29,000	1,300	30,300	4.29	3,286	1,986
			New service well demand:			3,939
			Conversions needed (at 3.2):			12,605
					Total	16,544

*Estimated

centage remains relatively constant and averages 10.18% for the 15-year period.

Table 2 shows the equivalent data for the 4-year period starting in 1977, with 1980 data estimated. Note that the number of service wells, as a percentage of total wells, is far below the 10.18% average for the preceding 15 years. The last columns of this table show the number of service wells that should have been drilled to reach the 1962 to 1976 average and, by difference, the number needed to be drilled to attain that historical goal — just under 4,000 wells.

Historical data also show that 3.2 producing wells are converted to service status for each new service well drilled. If the shortfall in new service wells is 3,939, as shown in Table 2, the number of expected conversions is 3.2 times that number, or 12,605. On a historical basis, we need 16,544 service wells just to handle the oil completions made from 1977 to 1980.

Fig. 1 shows some of the same data, but goes back further than 1962. During the drilling boom of 1955, there were few service wells drilled, but that boom brought in a large number of new oilfields which were put on production in a conventional manner, accepted as standard procedure for the times. Since many areas were under proration, there was no need to inject water or to use an enhanced recovery scheme as a means of maintaining reservoir pressure or improving the recovery factor.

The boom in service wells that began in 1956 and ended in 1961 was a natural consequence of these discoveries, once operators noted that production from reservoirs discovered in 1955 was declining and that some sort of fluid injection was needed to prevent reservoir degradation. The result was a flurry of activity to drill more service wells or recomplete marginal producing wells to injection status.

The modest jump in service well completions in 1968 (see Fig. 1) is probably due to start-up of additional enhanced recovery projects, including conventional waterflooding, mostly on a local basis. In Texas alone, 1,569 service completions were made during the 2-year period of 1968 to 1969.

The 1973 oil embargo is probably responsible for the spurt of activity in both producing and service wells as operators sought new reserves and tried to make the most out of known reservoirs. Service well completions started a decline in 1975, and that decline continues.

Why

The decline in the number of service well completions which started in 1975 is probably due to the price of oil at that time. It was more profitable to find new oil than it was to exploit known reserves by fluid-injection means.

Under price control, the incremental production increase from waterflooding a reasonably good oilfield did not justify the cost of service wells and surface equipment.

As late as December 1979, for example, more than 55% of U.S. production was being sold for about \$11/bbl, little more than one-fourth the price of new oil.

And price decontrol didn't help much either. If a reservoir was declining, there was more incentive for the operator to let it decline to the stripper stage rather than spend money on rejuvenation. Once at the stripper level, a field had to be maintained that way for at least 1 year to qualify for the "once-a-stripper, always-a-stripper" category. After that year, operators will gladly spend whatever it takes to boost production — drill new producing and service wells, convert old producers to injection wells, install surface equipment, etc.

Price decontrol has put all of this in a new light.

What's Coming

Under decontrolled crude prices, operators are expected to take a new look at various production schemes. Many good ideas, shelved in the past because of economics, will be reborn to lead the way to high yields from known reservoirs.

Some years ago, operators agreed that certain enhanced oil recovery techniques recovered more oil from a reservoir than could be obtained by straight depletion methods or routine waterflooding. But the price of crude always seemed to be \$5/bbl less than what was needed to make these methods economically attractive. Then the price of oil went up by about \$5/bbl, but so did the price of the chemicals and support equipment needed to operate a tertiary-type flood.

Thanks to some quantum jumps in world oil prices, in the next year or so we may see crude oil value outdistancing that of micellar polymers and other enhanced recovery chemicals on a relative basis, throwing a new light on reservoir evaluation.

A new emphasis on enhanced recovery — or even conventional waterflooding — requires the addition of many new service wells, far in excess of the 16,000 plus shortfall we now have. Projection of 1980 trends into 1981 and beyond indicates this shortfall is growing at an alarming rate. Add to that the number of service wells needed to install recovery projects not now under consideration and the result is even more alarming.

What It Means

The impact of the shortfall in numbers of service wells could have far-reaching effects. And we may not have to wait long to see them, as the curve has already turned upward. During the third quarter of 1980, service well completions were running 84% ahead of the same period in 1979.

The first impact is on the number of drilling rigs needed to add 4,000 new wells to our total. Using average data, this should require about 200 rigs working a full year.

The 12,000 well conversions from producing status to service status will occupy the full time of 100 workover rigs for a full year. This is probably conservative, as it only allows 3 days for each conversion and assumes operations 7 days/week year-round. And now allowances have been made for parted tubing, stuck packers, poor squeeze jobs, and other misfortunes.

These conversions, plus the 4,000 new service wells, will add some 16,000 wells to the total inventory (not allowing for abandonments in other areas). These wells will probably need some sort of remedial work at least once each year, increasing the load on the well-servicing industry and the demand for more workover rigs.

Secondary impacts will be felt by service and supply companies, as each of these new wells will require casing, tubing, downhole equipment, and a wellhead. Further, each will require corrosion protection and the application of various chemicals to carry out the objectives of an enhanced recovery project.

A natural consequence of any large-scale injection program is the increased volume of fluid to be handled from producing wells — more oil, more water, or both. This introduces a demand for more artificial lift, either new installations or replacement of present equipment to increase capacity.

The service-well shortfall, coupled with the continuing increase in the number of development and exploratory wells being drilled, means there is plenty of work for the many new drilling contractors entering the business, for the 50 or so new drilling rigs being fabricated each month, and for the large number of rigs entering the U.S. to escape the unrest in Canada. ■

Acknowledgement. This information was developed in conjunction with Craig W. Pech, director of market planning for Baker Oil Tools Co., with most of the data coming from Baker's "Five Year Activity Forecast". Other data obtained from IADC publications.

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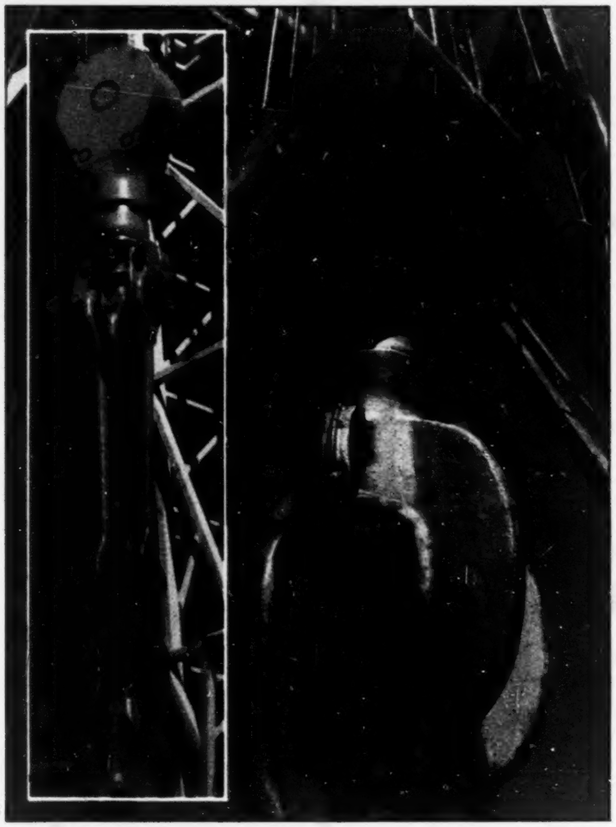

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Gas Confirmation Offshore Trinidad

Successful testing of the Dolphin No. 2 well in the east coast marine area off Trinidad and Tobago indicates there is a substantial amount of gas reserves in the area. The well is located approximately 50 miles east of Galeota Point in 380 ft of water. It is 3,800 ft west of the Dolphin No. 1 gas discovery drilled by Texaco Trinidad Inc. in 1977 as operator for itself and Tenneco Oil Co. of Trinidad.

The Dolphin No. 2 tested gas from four successful test intervals below 5,600 ft at individual rates between 6.4 and 20 MMcfd on ¾-in. chokes with surface pressures of 650 to 1,900 psi. Combined flow rate for the four tests was 54.8 MMcfd.

Triton To Drill Off New Zealand

New Zealand Petroleum Co. Ltd., an affiliate of Triton Oil & Gas Corp., Dallas, Tex., has been issued a 5-year license covering 1.5 million acres off the coast of New Zealand's South Island, near Greymouth.

An initial exploratory well is to be drilled in mid-1981. It is programmed for TD of 7,000 ft and is expected to penetrate an Eocene structure that is geologically equivalent to the producing zones of the Maui and Kapuni fields.

International Count At Record 5,000 Rigs

The Free World rig count topped 5,000 at the end of last year for the first time ever, according to the report for December 31 issued by Hughes Tool Co., Houston, Tex.

The count for all countries except the U.S. and Canada increased by 135 rigs during 1980 to reach 1,351 at year-end. Canada gained 13 active rigs during the year, and the U.S. added a whopping 820.

Latin America gained 22 rigs during the last quarter of 1980, with 11 of them credited to Colombia, and six to Argentina. Mexico stayed at 216 rigs during the quarter to maintain its position as the Free World's third busiest drilling country — after the U.S. and Canada.

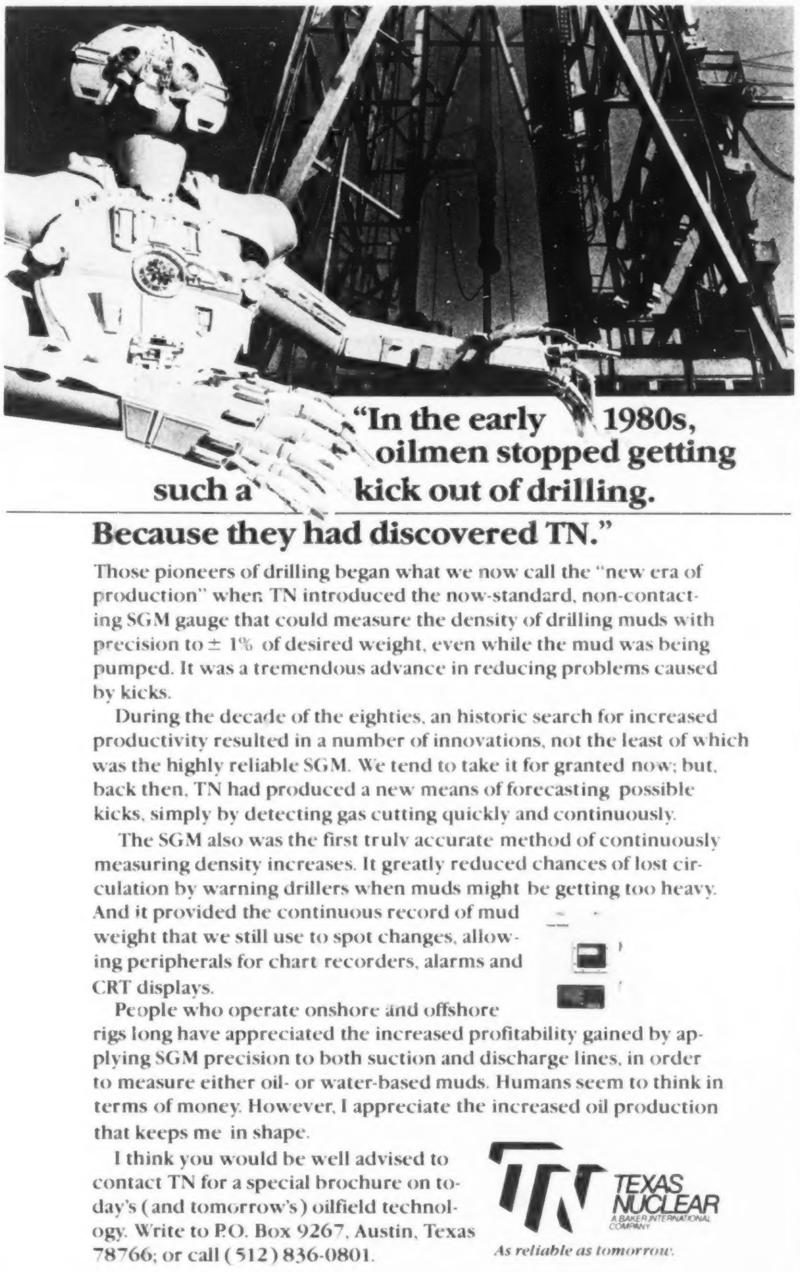
Europe picked up a total of 11 rigs between September and December, with France upping its total by seven, and Italy picking up nine.

Africa, paced by a drop of five rigs in Algeria, finished the year with a loss of one rig for the quarter.

The Middle East maintained the status quo all the way down the line in the fourth quarter, and Asia's gain of 10 rigs was paced by an eight-rig increase in Indonesia.

The Quarterly International Active Rig Report as prepared by Hughes Tool Co., Houston, Tex.

Country	Mar. '80	June '80	Sept. '80	Dec. '80
South America, Central America and Mexico				
Argentina	73	72	76	82
Bolivia	4	4	4	4
Chile	6	6	7	8
Ecuador	3	3	3	3
Peru	19	20	22	22
Brazil	64	76	73	75
Venezuela	52	54	50	50
Colombia	12	14	10	21
Trinidad	13	14	12	12
Mexico	213	216	216	216
Central America	2	3	4	6
	461	482	477	499



"In the early 1980s, oilmen stopped getting such a kick out of drilling. Because they had discovered TN."

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During the decade of the eighties, an historic search for increased productivity resulted in a number of innovations, not the least of which was the highly reliable SGM. We tend to take it for granted now; but, back then, TN had produced a new means of forecasting possible kicks, simply by detecting gas cutting quickly and continuously.

The SGM also was the first truly accurate method of continuously measuring density increases. It greatly reduced chances of lost circulation by warning drillers when muds might be getting too heavy. And it provided the continuous record of mud weight that we still use to spot changes, allowing peripherals for chart recorders, alarms and CRT displays.

People who operate onshore and offshore rigs long have appreciated the increased profitability gained by applying SGM precision to both suction and discharge lines, in order to measure either oil- or water-based muds. Humans seem to think in terms of money. However, I appreciate the increased oil production that keeps me in shape.

I think you would be well advised to contact TN for a special brochure on today's (and tomorrow's) oilfield technology. Write to P.O. Box 9267, Austin, Texas 78766; or call (512) 836-0801.

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Country	Mar. '80	June '80	Sept. '80	Dec. '80
Europe				
Austria	9	8	7	7
Denmark	2	3	3	2
France	11	11	11	18
Germany	21	23	22	22
Greece	2	3	3	3
Holland	18	20	17	14
Italy	19	16	16	25
Norway	11	11	11	11
Spain	6	12	11	12
Switzerland	1	1	1	1
United Kingdom (North Sea)	43	50	50	50
Yugoslavia	22	22	22	22
	166	181	176	187
Africa				
Algeria	113	113	111	106
Angola	5	5	5	4
Cameroon	7	4	4	8
Congo	4	4	4	5
Gabon	9	9	9	6
Libya	45	40	40	40
Morocco	2	2	2	3
Chad	1	1	1	1
Nigeria	20	20	20	20
Tunisia	7	7	7	9
Niger	5	5	5	5
Ivory Coast	3	3	3	3
South Africa	2	2	2	2
Sudan	2	2	2	2
Zaire	1	1	1	1
	226	218	216	215
Middle East				
Abu Dhabi	21	24	24	24
Bahrain	1	1	1	1
Dubai	1	3	3	3
Egypt	24	27	27	27
Iraq	37	39	39	39
Kuwait	2	3	3	3
Oman	7	8	8	8
Qatar	7	8	8	8
Ras Al Khaimah	–	1	1	1
Saudi Arabia	24	25	25	25
Sharjah	–	1	1	1
Syria	16	15	15	15
Turkey	7	7	40	40
	147	162	195	195
Asia				
Bangladesh	2	2	4	5
Brunei	8	8	7	7
Burma	23	24	27	28
India	43	42	43	43
Indonesia	72	77	76	84
Japan	15	16	16	15
Malaysia	11	11	13	13
Pakistan	14	12	14	15
Philippines	17	13	9	10
Thailand	5	4	5	5
Taiwan	12	12	12	12
	224	223	227	237
Australia	12	17	19	14
New Zealand	2	1	1	4
Papua New Guinea	–	1	1	–
	14	19	21	18
Total free world except U.S. and Canada	**1,238**	**1,285**	**1,312**	**1,351**

Country	Mar. '80	June '80	Sept. '80	Dec. '80
North America				
Canada	400	418	387	343
U.S.	2,659	2,901	3,138	3,326
Totals	**4,297**	**4,604**	**4,837**	**5,020**

Letters

TO THE EDITOR:

In your Offshore Technology section on page 16 of the February 1981 issue of PETROLEUM ENGINEER INTERNATIONAL magazine, you stated that "A deep stratigraphic test well is being drilled about 28 miles southwest of San Luis Obispo, California, in about 1,820 feet of water by Exploration Services Company of Ventura, California, as operator for a group of participating oil companies."

There is presently no stratigraphic test well drilling off the California coast. The test well mentioned in your article was proposed to be drilled in August 1980 by Exploration Services Company, however, the company was unable to obtain an available drill rig at that time. The proposed test was cancelled and no permit to drill was ever issued by the U.S. Geological Survey.

Robert L. Rioux
U.S. Department of the Interior
Reston, Va.

The writer is deputy division chief of offshore minerals regulation for the U.S. Geological Survey's Conservation Division.

MEETING CALENDAR

5-7 Deep Drilling and Production Symposium, Amarillo Petroleum Section of the Society of Petroleum Engineers, Amarillo Civic Center, Amarillo, Tex.

5-8 Joint Symposium on Enhanced Oil Recovery, Society of Petroleum Engineers and the Department of Energy, Tulsa Assembly Center, Tulsa, Okla.

5-8 American Petroleum Institute Production Department 11th annual meeting — North American Fossil Fuel Potential, Sheraton Palace Hotel, San Francisco, Calif.

6-9 International Energy Development Conference, Brigham Young University, Salt Palace Civic Auditorium, Salt Lake City, Utah.

6-10 Corrosion/81 — International Corrosion Forum, National Association of Corrosion Engineers, Sheraton Centre Hotel and the Hotel Toronto, Toronto, Ontario, Canada.

7-9 Machinery Vibration Monitoring and Analysis Meeting, Vibration Institute, The Royal Orleans, New Orleans, La.

10-12 Region IV Association of Desk and Derrick Clubs annual meeting, El Tropicano Hotel, San Antonio, Tex.

12-15 29th annual convention, Rocky Mountain Section of the American Association of Petroleum Geologists, Albuquerque Hilton Inn, Albuquerque, N.M.

13-14 Energy Project Financing — An International Analysis, *Business Week*, McGraw-Hill Headquarters, New York, N.Y.

13-15 1981 Engineers Public Affairs Forum, National Society of Professional Engineers, Hyatt Regency Hotel, Washington, D.C.

15 Microbial Enhancement of Oil Recovery, Bartlesville Energy Technology Center, U.S. Department of Energy, Bartlesville, Okla.

23-24 28th annual Southwestern Petroleum Short Course, The University Center of Texas Tech University, Lubbock, Tex.

26-May 28 3rd Advanced International Program in Oil and Gas Financial Management, Southwestern Legal Foundation and the Center for International Accounting Development of the University of Texas at Dallas, Southwestern Legal Foundation Building on the UTD Campus, Richardson, Tex.

26-29 Third annual Industrial Energy Conservation Technology Conference and Exhibition, Texas Industrial Commission, Hyatt-Regency Hotel, Houston, Tex.

30-May 1 Twelfth Annual Pittsburgh Conference on Modeling and Simulation, School of Engineering, University of Pittsburgh and others, Pittsburgh, Pa.

May

3-6 83rd Annual General Meeting of CIM and the 32nd Annual Technical Meeting of the Petroleum Society of CIM — Our Challenge — Managing Canada's Resources, Canadian Institute of Mining and Metallurgy, Calgary Four Seasons Hotel, Calgary, Alberta.

4-7 Thirteenth Annual Offshore Technology Conference, Houston Astrodomain, Houston, Tex. ■

Profit Margin Dips Despite Record Revenues

Rising prices for crude oil, refined products and natural gas were the biggest factor in an overall 26.6% increase in 1980 earnings over 1979 results for 70 oil companies.

Slack demand for refined products and high inventories in second half of 1980 hurt refining and marketing operations. Product prices in virtually all U.S. markets failed to keep pace with rising crude oil costs. As a result, the companies' net income in fourth quarter rose only 1% over same quarter of 1979.

Though many firms reported record revenues and earnings, the group's overall profit margin for 1980 was 5.6%, down from 5.8% in 1979.

Oil/gas production was the main profit maker for integrated oil firms and for some gas utilities. "Windfall profits" tax, applied to almost all U.S. oil production after March 1, penalized independents with a high ratio of domestic oil output.

Texaco's 12-month earnings rose but fourth quarter net dropped from same 1979 period. Downstream operations declined in U.S. due to lower margins, but rose internationally.

Exxon said higher prices led to greater net on production, although gas sales fell 7%. Higher refined product margin for 12-month period more than offset a 10% decline in sales volume.

Standard California had higher domestic gas production. Despite fourth quarter slump, refining and marketing earnings for full year were higher than in 1979. Higher prices offset lower margins on product sales internationally.

Mobil received higher prices on lower volumes of product sales. Worldwide chemical sales rose. Foreign inventory profits were $344 million higher than in 1979.

Energy production earnings rose about 33% for Gulf in 1980, though fourth quarter net fell as refining/marketing and chemicals slumped.

Conoco's international oil/gas earnings benefited from higher crude oil margins and production in North Sea, but margins and volumes fell in Libya, and U.S. income taxes were higher.

Higher oil prices, greater output from North Slope of Alaska and strong refining operations in first half caused Atlantic Richfield's income gain.

Union Oil had higher margins in domestic refining/marketing and higher chemical earnings as well as more oil/gas production income.

Greater liquids production overseas and higher prices were responsible for Standard Indiana's income gain, partially offset by lower refined product margins, lower chemical earnings, lower domestic oil/gas output.

Worldwide liquids output rose for Phillips Petroleum, but earnings from refining/marketing and chemicals fell below 1979 levels.

Net income in U.S. more than doubled for Marathon Oil, while earnings from foreign sources plummeted. Higher production revenues offset lower demand for products and higher exploration costs.

Tosco had net loss in fourth quarter and 12-month earnings fell from the previous year. Sharp increases in crude oil costs couldn't be passed through to customers because of high inventories of products.

Natomas had record earnings in all divisions: oil/gas production, marketing, geothermal and coal mining. Mapco cited higher prices from decontrol of gas liquids and record coal production.

Earnings for the group of large

FOURTH QUARTER GAS COMPANY FINANCIAL REPORTS

	Three months ending December 31**						Twelve months ending December 31**					
	Revenues ($000)			Earnings* ($000)			Revenues ($000)			Earnings* ($000)		
Company	1980	1979	% Chg.	1980	1979	% Chg.	1980	1979	% Chg.	1980	1979	% Chg.
Alabama Tennessee N.G.	27,067	19,838	+ 36.4	1,589	1,073	+ 48.1	91,907	69,878	+ 31.5	5,266	4,893	+ 7.6
American Natural Res.	969,920	797,528	+ 21.6	57,884	60,969	- 5.1	3,038,546	2,505,622	+ 21.3	113,219	148,654	- 23.8
Arkansas Louisiana Gas	240,223	196,546	+ 22.2	6,266	8,738	- 28.3	974,510	735,302	+ 32.5	73,334	60,741	+ 20.7
Columbia Gas	1,037,178	872,689	+ 18.8	56,234	42,450	+ 32.5	3,636,507	2,851,733	+ 27.5	165,311	143,113	+ 15.5
Commonwealth N.G.	61,352	47,566	+ 29.0	1,423	1,360	+ 4.6	211,232	154,318	+ 36.9	6,035	5,448	+ 10.8
Consolidated N.G.	751,748	640,760	+ 17.3	41,446	37,843	+ 9.5	2,503,054	2,045,947	+ 22.3	113,008	122,823	- 8.0
El Paso Companies	928,106	792,264	+ 17.1	30,534	31,971	- 4.5	3,543,436	2,663,809	+ 33.0	108,889	110,725	- 1.7
Enserch Corp.	694,734	597,799	+ 16.2	34,807	21,249	+ 63.8	2,694,933	2,238,216	+ 20.4	139,583	84,535	+ 65.1
Houston N.G.[1]	653,253	561,371	+ 16.4	54,052	43,394	+ 24.6	2,449,754	2,006,622	+ 22.1	206,848	151,100	+ 36.9
InterNorth	907,514	775,687	+ 17.0	42,559	55,757	- 23.7	3,037,764	2,499,202	+ 21.5	211,722	185,538	+ 14.1
Mountain Fuel Supply	113,398	98,259	+ 15.4	8,642	9,281	- 6.9	406,189	334,789	+ 21.3	30,851	25,540	+ 20.8
Northwest Energy	396,099	384,879	+ 2.9	16,049	14,697	+ 9.2	1,323,432	1,119,532	+ 18.2	51,347	41,267	+ 24.4
Oneok Inc.	329,143	245,344	+ 34.2	6,844	4,621	+ 48.1	943,853	735,879	+ 28.3	42,075	31,244	+ 34.7
Pacific Lighting	950,262	703,085	+ 35.2	38,017	17,072	+122.7	3,401,903	2,244,279	+ 51.6	101,129	92,071	+ 9.8
Panhandle Eastern	718,143	549,707	+ 30.6	40,588	23,357	+ 73.8	2,472,235	1,967,657	+ 25.6	181,959	146,184	+ 24.5
Peoples Energy[2]	828,947	752,690	+ 10.1	40,272	39,674	+ 1.5						
Pioneer Corp.	232,063	200,248	+ 15.9	23,962	17,016	+ 40.8	911,989	732,486	+ 24.5	90,556	65,631	+ 38.0
Southern Natural Res.	469,385	431,644	+ 8.7	35,155	25,917	+ 35.6	1,798,723	1,492,222	+ 20.5	139,257	109,415	+ 27.3
Texas Eastern Corp.	1,155,830	868,498	+ 33.1	58,812	46,131	+ 27.5	4,272,854	2,939,055	+ 45.4	219,757	177,104	+ 24.1
TransCanada PipeLines	946,025	797,963	+ 18.6	26,339	24,324	+ 8.3	3,143,382	2,580,972	+ 21.8	93,435	87,168	+ 7.2
Transco Companies	819,622	468,944	+ 74.8	31,729	22,384	+ 41.7	2,627,787	1,528,108	+ 72.0	112,506	68,361	+ 64.6
Union Gas Ltd.	247,056	195,962	+ 26.1	7,974	4,164	+ 91.5						
United Energy Res.	1,113,433	957,788	+ 16.3	48,334	28,380	+ 70.3	4,135,342	3,133,654	+ 32.0	165,454	111,687	+ 48.1
TOTAL	14,590,501	11,957,059	+ 22.0	709,511	581,822	+ 22.0	47,619,332	36,579,282	+ 30.2	2,371,541	1,973,242	+ 20.2

**Excluding non-recurring items. *Earnings available to common stock. [1]Ends October 31. [2]Ends September 30.

gas companies surveyed by EMR rose 20.2% over the previous year but trailed revenue gains.

Most gains in net income continue to come from non-regulated operations, especially oil/gas production, gas processing, NGL sales and contract drilling. Decontrol of gas liquids prices (except propane) on Jan. 1, 1980 boosted earnings. Even though new natural gas customers are being added in most parts of U.S., gas sales are essentially flat due to conservation by existing customers.

Income rose for Consolidated Natural Gas, spearheaded by oil/gas production, which offset the effects of recession, conservation and suspension of LNG operations at Cove Point, MD.

Oneok's healthy earnings gain was mainly due to non-utility operations—production, NGL extraction, contract drilling. Same factors boosted income of Pioneer Corp.

Non-utility business, including real estate and energy-related activities, accounted for most of the improvement in Pacific Lighting Corp.'s income.

Net income fell for Peoples Energy Corp.'s natural gas pipeline unit, but rose for the firm's contract drilling unit.

Record earnings for InterNorth were mainly due to its liquid fuels group, which benefited from higher prices.

United Energy Resources had higher gas sales, more oil/gas production and healthy drilling and well servicing operations.

El Paso said higher profits from oil/gas production were more than offset by lower chemical profits and loss from discontinued LNG operations. The company will write down the investment in its LNG tanker fleet.

FOURTH QUARTER OIL COMPANY FINANCIAL REPORTS

	Three months ending December 31**						Twelve months ending December 31**							
	Revenues ($000)			Earnings* ($000)			Revenues ($000)			Earnings* ($000)			Profit Margin#	
Company	1980	1979	% Chg.	1980	1979	% Chg.	1980	1979	% Chg.	1980	1979	% Chg.	1980	1979
§Adams Resources & Energy	68,807	54,443	+ 26.4	1,123	740	+ 51.8	241,163	178,893	+ 34.8	(3,037)	4,439			2.5
Altex Oil	374	213	+ 75.6	168	48	+250.0	1,074	734	+ 46.3	184	(227)		17.1	
American Petrofina	613,450	457,551	+ 34.1	19,315	17,707	+ 9.1	2,098,464	1,587,229	+ 32.2	104,279	83,187	+ 25.4	5.0	5.2
Argonaut Energy	1,047	717	+ 46.0	96	118	- 18.6	2,648	1,930	+ 37.2	167	(3)		6.3	
§Ashland Oil	1,969,400	1,928,500	+ 2.1	20,200	75,900	- 73.4	8,159,300	7,245,700	+ 12.6	149,500	551,400	- 72.9	1.8	7.6
Asamera	99,416	72,976	+ 36.2	3,516	2,178	+ 61.4	269,071	192,157	+ 37.9	7,923	9,280	- 14.6	2.[illegible]	4.8
§Atlantic Richfield	7,483,382	4,987,482	+ 50.0	398,279	342,958	+ 16.1	24,578,042	16,818,324	+ 46.1	1,651,423	1,165,894	+ 41.6	6.7	6.9
Belco Petroleum	222,325	202,446	+ 9.8	22,650	24,900	- 9.0	836,933	643,503	+ 30.1	77,893	79,036	- 1.4	9.3	12.3
Brock Exploration	1,978	1,631	+ 21.3	371	428	- 13.3	5,596	3,821	+ 46.5	1,259	896	+ 41.4	22.5	23.4
Callon Petroleum[2]	1,898	1,721	+ 10.9	202	364	- 44.5	8,488	4,628	+ 83.4	1,358	911	+ 49.1	16.0	19.7
Centura Energy	7,510	5,647	+ 33.0	285	184	+ 54.9	10,147[1]	7,731[1]	+ 31.3	151[1]	64[1]	+135.9	1.5	0.8
Clark Oil & Refining	400,742	332,017	+ 20.7	4,324	13,170	- 67.2	1,657,635	1,175,015	+ 41.1	43,920	41,658	+ 5.4	2.7	3.5
§Conoco Inc.	5,240,000	3,795,700	+ 38.1	240,600	190,700	+ 26.2	18,766,300	13,082,900	+ 43.4	1,026,200	815,400	+ 25.9	5.5	6.2
Crown Central Petroleum	313,748	327,211	- 4.1	3,868	19,445	- 80.1	1,266,898	1,054,771	+ 20.1	19,147	71,678	- 73.3	1.5	6.8
Crystal Oil	84,139	53,585	+ 57.0	310	4,152	- 92.5	273,164	164,898	+ 65.7	10,690	10,233	+ 4.5	3.9	6.2
Delhi International Oil	7,399	5,319	+ 39.1	960	878	+ 9.3	27,138	17,594	+ 54.2	4,784	3,590	+ 33.3	17.6	20.4
Diamond Shamrock	848,100	671,381	+ 26.3	45,917	58,507	- 21.5	3,145,720	2,356,858	+ 33.5	201,214	178,123	+ 13.0	6.4	7.6
Exeter Oil	1,434	1,125	+ 27.5	248	391	- 36.6	4,461	2,700	+ 65.1	1,129	800	+ 41.1	25.3	29.6
Exxon	29,847,000	25,820,000	+ 15.6	1,350,000	1,365,000	- 1.1	110,469,000	84,968,000	+ 30.0	5,660,000	4,295,000	+ 31.8	5.1	5.1
Felmont	15,218	10,251	+ 48.5	1,982	2,827	- 29.9	57,441	40,272	+ 42.6	13,697	9,351	+ 46.5	23.8	23.2
Galaxy Oil[2]	3,011	2,151	+ 39.9	61	62	- 1.6								
General American	75,765	57,117	+ 32.6	10,499	15,214	- 31.0	273,448	192,599	+ 42.0	54,131	46,685	+ 15.9	19.8	24.2
§Getty Oil	2,966,250	1,546,526	+ 91.8	210,857	182,330	+ 15.6	10,436,827	5,120,739	+103.8	870,847	603,363	+ 44.3	8.3	11.8
Gulf Energy & Develop.	18,685	10,922	+ 71.1	1,989	2,117	- 6.0	50,486	33,544	+ 51.0	6,728	5,552	+ 21.2	13.3	16.6
Gulf Oil Corp.	7,603,000	7,730,000	- 1.6	304,000	366,000	- 16.9	28,790,000	26,140,000	+ 10.1	1,407,000	1,322,000	+ 6.4	4.9	5.1
Helmerich & Payne	66,217	46,862	+ 41.3	15,398	10,452	+ 47.3								
Houston O&M	125,323	86,746	+ 44.5	33,186	23,666	+ 40.2	382,987	300,624	+ 27.4	79,550	65,651	+ 21.2	20.8	21.8
Inexco Oil	39,220	29,751	+ 31.8	5,190	5,372	- 3.4	146,606	103,249	+ 42.0	22,576	17,504	+ 29.0	15.4	17.0
Kerr-McGee Corp.	949,371	755,470	+ 25.7	51,791	40,396	+ 28.2	3,477,881	2,683,469	+ 29.6	182,223	160,017	+ 13.9	5.2	6.0
Lear Petroleum	27,109	22,858	+ 18.6	2,304	1,760	+ 31.0								
Louisiana L&E	305,100	246,352	+ 23.8	48,227	44,313	+ 8.8	1,075,771	817,014	+ 31.7	180,162	169,044	+ 6.6	16.7	20.7
Mapco Inc.	532,864	439,092	+ 21.4	28,969	30,765	- 5.8	1,769,740	1,261,443	+ 40.3	122,260	88,600	+ 38.0	6.9	7.0
§Marathon Oil	2,420,748	2,220,287	+ 9.0	55,273	54,261	+ 1.9	8,754,198	7,199.522	+ 21.6	379,016	323,222	+ 17.3	4.3	4.5
Marion Corp.	137,986	91,396	+ 51.0	7,317	6,298	+ 16.2	470,266	300,070	+ 56.7	22,420	19,879	+ 12.8	4.8	6.6
May Petroleum	8,227	3,301	+149.2	1,235	759	+ 62.7	24,675	13,846	+ 78.2	4,524	2,325	+ 94.6	18.3	16.8
McMoRan Oil & Gas	13,614	10,062	+ 35.3	1,326	874	+ 51.7	27,011[1]	17,643[1]	+ 53.1	9,334[1]	1,750[1]	+433.4	34.5	9.9
Mesa Petroleum	86,747	72,147	+ 20.2	33,979	16,361	+107.7	331,799	258,106	+ 28.6	95,236	54,203	+ 75.7	28.7	21.0
§Mobil Corp.	17,314,000	14,815,000	+ 16.9	565,000	538,000	+ 5.0	63,652,000	48,292,000	+ 31.8	2,819,000	2,007,000	+ 40.5	4.4	4.2
Murphy Oil	537,054	416,898	+ 28.8	45,610	38,021	+ 20.0	2,016,752	1,595,919	+ 26.4	150,547	103,581	+ 45.3	7.5	6.5
§Natomas Energy	193,600	137,700	+ 93.6	49,700	20,500	+142.4	792,000	492,000	+ 61.0	187,700	75,500	+148.6	23.7	15.3
Noble Affiliates	71,246	61,942	+ 15.0	13,092	11,170	+ 17.2	276,561	213,838	+ 29.3	47,199	33,041	+ 42.8	17.1	15.5
Occidental Petroleum	3,179,600	2,866,600	+ 10.9	138,100	186,800	- 26.1	12,476,100	9,554,800	+ 30.6	710,800	561,600	+ 26.6	5.7	5.9
Patrick Petroleum	16,839	8,369	+101.2	1,360	(358)		54,784	36,342	+ 50.7	3,209	1,701	+ 88.6	5.9	4.7
Peninsula Resources	4,669	3,027	+ 54.2	504	208	+142.3	15,609	10,397	+ 50.1	1,555	495	+214.1	10.0	4.8
Pennzoil Co.	659,422	603,064	+ 9.3	76,384	72,008	+ 6.1	2,483,015	2,051,693	+ 21.0	304,076	233,789	+ 30.1	12.2	11.4
Petroleum Development	1,422	3,795	- 62.5	142	171	- 17.0	12,430	10,301	+ 20.6	1,054	888	+ 18.6	8.5	8.6
Petro-Lewis	46,314	25,271	+ 83.3	8,184	3,274	+150.0	87,065[1]	48,321[1]	+ 80.2	15,516[1]	7,179[1]	+116.1	17.8	14.9
Phillips Petroleum	3,874,418	3,044,789	+ 27.2	286,973	306,491	- 6.4	13,712,879	9,744,750	+ 40.7	1,069,614	891,121	+ 20.0	7.8	9.1
Quaker State	222,065	178,494	+ 24.4	5,463	5,064	+ 7.9	832,494	691,641	+ 20.4	27,775	34,121	- 24.5	3.1	4.9
Seneca Oil[3]	3,783	917	+312.5	1,559	131	+1090.0	8,591	2,538	+238.5	2,220	178	+1147.2	25.8	7.0
Shell Oil	5,130,200	4,301,300	+ 19.0	408,600	331,200	+ 23.0	19,958,700	14,546,200	+ 37.0	1,541,600	1,125,600	+ 37.0	7.7	7.7
Southland Royalty	84,491	76,230	+ 14.8	9,924	16,962	- 70.9	366,571	256,611	+ 30.0	62,289	54,752	+ 12.1	17.0	21.3
§Standard California	10,834,000	9,543,000	+ 13.5	615,000	524,000	+ 17.3	41,553,000	30,938,000	+ 34.3	2,401,000	1,785,000	+ 34.5	5.8	5.8
§Standard Indiana	7,700,000	6,100,000	+ 26.2	402,200	368,700	+ 9.1	27,800,000	20,200,000	+ 37.6	1,915,300	1,506,600	+ 27.1	6.9	7.5
Statex Petroleum[4]	2,748	1,272	+116.0	988	206	+379.6	7,457	4,224	+ 76.5	1,862	787	+136.6	25.0	18.6
Sun Co.	4,100,000	3,200,000	+ 28.1	29,600	222,900	- 86.7	13,200,000	10,800,000	+ 22.2	722,800	699,900	+ 3.3	5.5	6.5
Superior Oil	440,720	302,625	+ 45.6	97,203	47,682	+103.9	1,497,695	1,085,394	+ 40.0	334,458	200,287	+ 67.0	22.3	18.5
Supron Energy	19,979	14,053	+ 42.2	6,406	4,796	+ 33.5	66,166	48,142	+ 37.4	20,093	14,420	+ 39.3	30.3	30.0
Tenneco	3,641,000	3,269,000	+ 11.4	200,000	164,000	+ 21.9	13,226,000	11,209,000	+ 18.0	726,000	571,000	+ 27.1	5.5	5.1
Tesoro	865,700	1,032,191	- 16.1	23,041	34,359	- 32.9	3,408,197	3,107,459	+ 9.7	82,572	72,096	+ 14.5	2.4	2.3
Texaco	14,058,300	12,012,200	+ 17.0	500,300	534,300	- 6.3	52,485,900	39,095,500	+ 34.3	2,240,200	1,759,100	+ 27.4	4.3	4.5
Texas Oil & Gas[2]	344,137	267.740	+ 29.0	40,365	29,259	+ 38.0	1,267,187	1,000,132	+ 26.7	152,222	107,266	+ 41.9	12.0	10.7
Tipperary Corp.	23,355	19,348	+ 20.7	1,944	2,734	- 28.9	91,801	66,685	+ 37.7	5,554	6,564	- 15.4	6.1	9.8
Tosco Corp.	680,642	549,185	+ 23.9	(9,837)	24,556		2,387,241	1,922,237	+ 24.2	46,096	78,028	- 40.9	1.9	4.1
Transcontinental Oil	20,668	17,999	+ 14.8	1,435	(134)		77,050	63,901	+ 20.6	2,395	(3,670)		3.1	
Union California	2,592,700	2,215,200	+ 17.0	177,249	152,305	+16.4	10,051,995	7,680,952	+ 30.9	647,000	500,604	+ 29.2	6.4	6.5
United Refining							664,370	502,917	+ 32.1	3,947	17,175	- 77.0	0.6	3.4
Universal Resources[4]	11,401	8,880	+ 28.4	2,352	1,102	+113.4	38,899	26,461	+ 47.0	7,222	2,929	+146.6	18.6	11.1
Wiser Oil	17,125	13,326	+ 28.6	6,386	4,928	+ 29.6	61,078	40,599	+ 50.4	17,911	13,258	+ 35.1	29.3	32.7
Woods Petroleum	14,588	11,838	+ 23.2	4,474	3,081	+ 45.2	64,683	43,159	+ 49.9	22,568	12,189	+ 85.2	34.9	28.3
TOTAL	139,312,790	117,222,209	+ 18.8	6,635,716	6,570,011	+ 1.0	512,584,648	389,371,639	+ 31.6	28,701,242	22,674,584	+ 26.6	5.6	5.8

**Excluding non-recurring items. *Earnings available to common stock. #Earnings* divided by Revenues = Profit Margin. () Loss. §Revenues include excise taxes. [1] Six months. [2] Ends Nov. 30. [3] Ends Sept. 30. [4] Ends Oct. 31.

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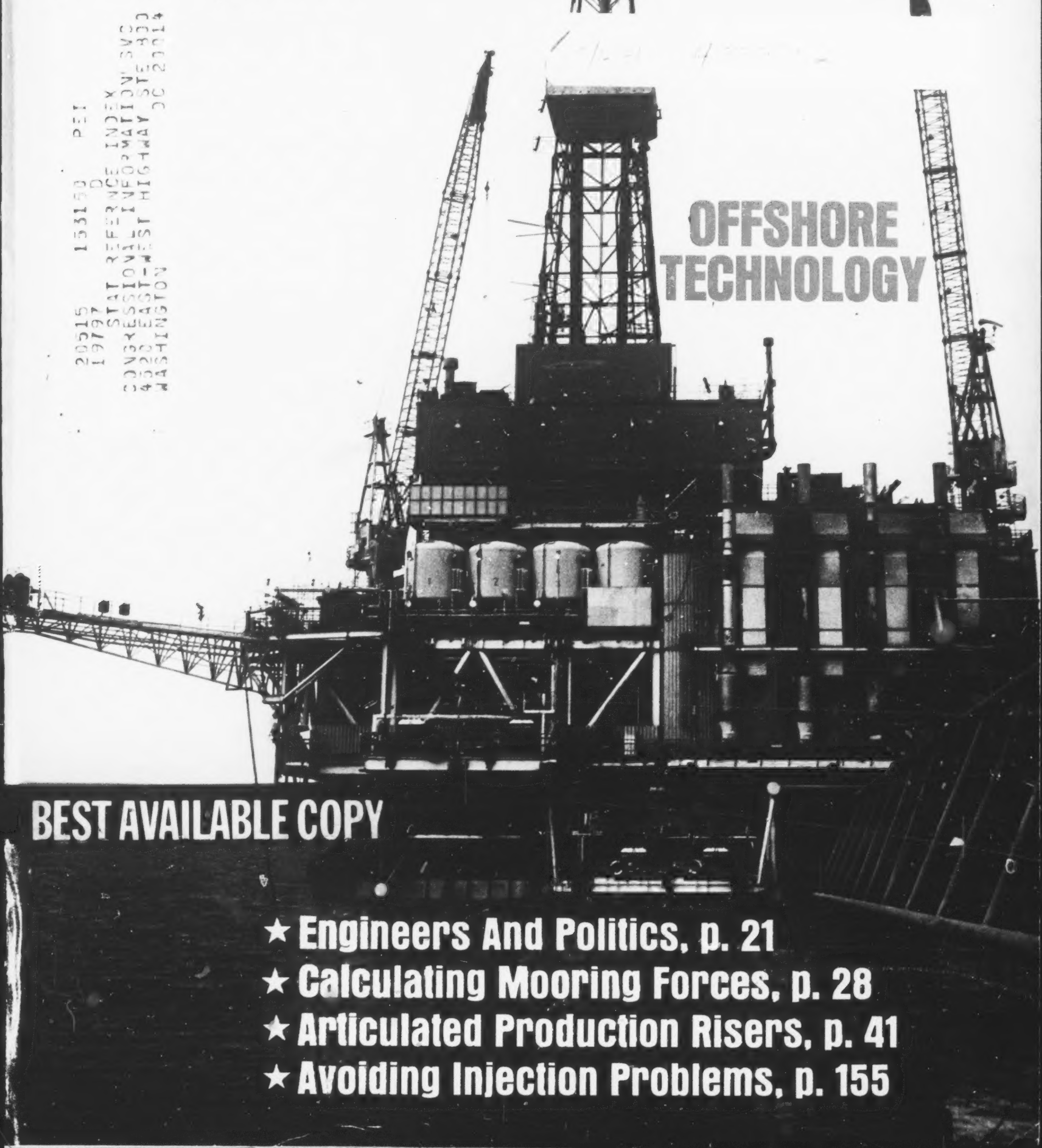

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RECORD DRILLING PACE CONTINUES IN U.S.

U.S. drillers continue to set records almost unceasingly this year with a rig count that has increased by nearly 400 active rotaries since the beginning of 1981.

By the middle of last month, the number of active rigs counted by Hughes Tool Co. topped 3,700 for the first time, and only the annual spring slump north of the border kept the combined U.S. and Canada total from continuing above the 4,000 mark it had reached in March.

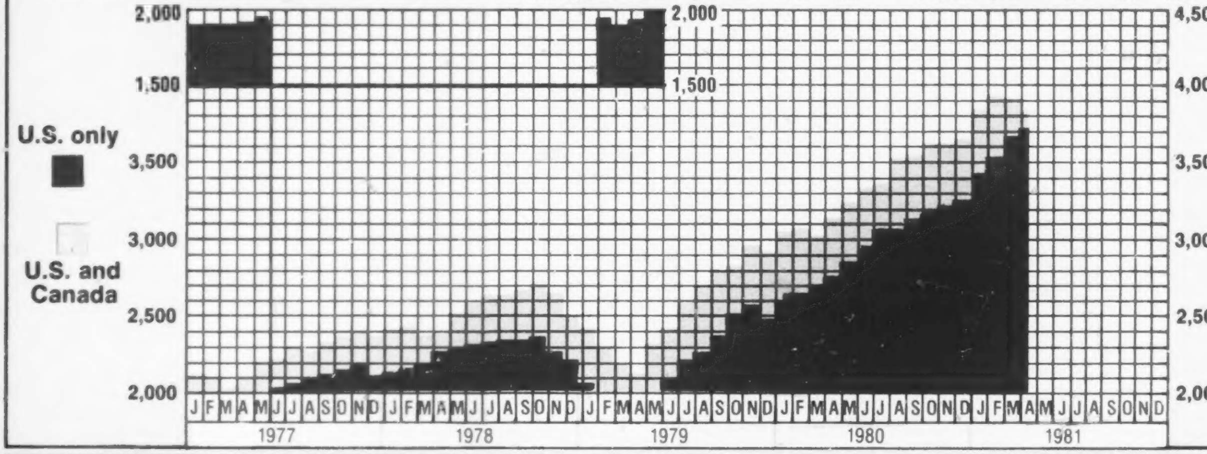
No fewer than eight states were credited with rig counts in three figures during the middle of April, and one state, Texas, had a count that was comfortably in four figures.

The average U.S. rig count for the first quarter of 1981 was 3,502, which is a 20% increase over last year's overall average of 2,916 active rigs, and a 33% increase over the 2,622 average for the first quarter of 1980.

Rotary Rigs Actually Making Hole In United States & Canada

As Reported to International Association of Drilling Contractors by Hughes Tool Company

	March 23, 1981	March 30, 1981	April 6, 1981	April 13, 1981
Alabama	13	14	14	15
Alaska				
Land	27	28	28	28
Offshore	1	3	3	3
Arkansas	31	35	35	36
Arizona	1	1	1	1
California				
Land	124	125	127	128
Offshore	19	19	19	20
Total	143	144	146	148
Colorado	70	74	65	56
Florida	10	10	11	11
Georgia				
Land	1	1	1	1
Hawaii	1	1	1	1
Idaho	4	3	4	3
Illinois	30	30	24	26
Kansas	182	182	188	191
Kentucky	3	3	3	2
North Louisiana	55	50	51	53
South Louisiana				
Inland Waters	88	87	90	99
Land	154	153	153	153
Offshore	149	155	159	149
Total	446	445	453	454
Maryland	1	0	0	0
Michigan	16	34	32	30
Mississippi	66	67	70	73
Montana	73	77	74	82
Nebraska	14	8	14	14
Nevada	6	7	8	6
New Mexico	130	127	138	139
New York	7	8	6	7
North Dakota	107	104	114	117
Ohio	72	76	78	90
Oklahoma	615	617	631	636
Pennsylvania	37	37	37	29
Rhode Island				
Offshore	2	2	1	1
South Dakota	3	2	2	2
Tennessee	1	1	1	1
Texas				
Offshore	79	80	77	75
Dist. 1	71	72	72	73
Dist. 2	49	50	60	53
Dist. 3	216	226	222	232
Dist. 4	118	114	110	111
Dist. 5 & 6	148	150	145	150
Dist. 7B	84	78	80	74
Dist. 7C	89	90	83	89
Dist. 8	152	160	151	145
Dist. 8A	82	86	84	82
Dist. 9	85	81	82	79
Dist. 10	54	57	52	58
Total	1227	1244	1218	1221
Utah	67	70	63	69
Virginia	2	2	2	3
Washington	1	1	1	1
West Virginia	29	30	29	32
Wyoming	166	168	172	175
Total U.S.	3605	3656	3668	3704
Western Canada	354	247	186	156
Eastern Canada	4	4	4	4
U.S. and Canada	3963	3907	3858	3864



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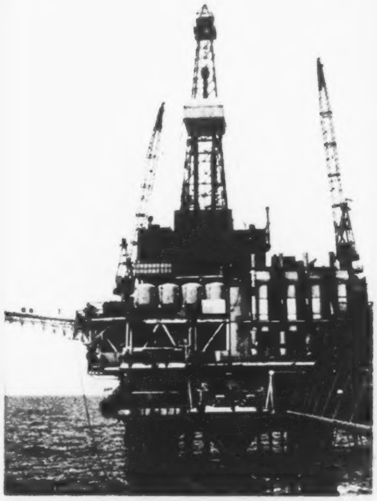

ABOUT THE COVER: A Loffland Brothers rig is shown drilling development wells for the Phillips Norway Group from a platform in the Greater Ekofisk area of the Norwegian North Sea, approximately 200 miles southwest of Stavanger. (Photo by Tom Smith)

NEXT MONTH: An in-depth look at international operations in June will take into account the opinions of major and independent petroleum concerns as well as drilling contractors.

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Drilling/Exploration Activities...

Well Costs Up By 23% In U.S.

Costs of drilling and equipping wells in the U.S. during 1978 and 1979

	Oil wells		Gas wells		Dry holes		Total wells	
	1978	1979	1978	1979	1978	1979	1978	1979
Wells drilled	17,790	19,243	13,306	14,079	15,559	15,201	46,655	48,523
Footage drilled, 000	74,411	80,261	72,819	77,340	83,389	79,911	230,619	237,512
Total cost, millions*	$3,700	$4,679	$4,979	$6,238	$4,382	$5,162	$13,061	$16,079
Average depth, feet	4,182	4,170	5,472	5,493	5,359	5,256	4,943	4,894
Average cost per well*	$207,983	$243,130	$374,178	$443,080	$281,653	$339,598	$279,950	$331,367
Average cost per foot*	$49.72	$58.29	$68.37	$80.66	$52.55	$64.60	$56.63	$67.70

*Includes all costs incurred for drilling and equipping wells through the Christmas tree.

The total cost of drilling and equipping oil and gas wells and dry holes in 1979 increased by 23.1% over 1978 to total more than $16 billion.

And, while the average depth of wells drilled in 1979 decreased by almost 50 ft, average cost per well was up by 18%. Average cost per foot increased by $11.07 during the year to reach $67.70.

These are among findings of the Joint Association Survey on Drilling Costs for 1979. The survey is issued annually by the American Petroleum Institute and is based on data collected from the petroleum industry by API, the Independent Petroleum Association of America, and the Mid-Continent Oil and Gas Association.

Average depth of oil wells completed in 1979 was 4,170, a decrease of 0.3%. Average cost per foot, on the other hand, was up by 17.2% in 1979 over the cost for 1978's oil wells. Average cost per foot for oil wells in 1979 was $58.29.

Cost per foot for gas wells was the highest of all three well categories for the year, reaching an average of $80.66, compared with $68.37 in 1978. Average depth of gas wells in 1979 was 5,493 ft, an increase of 0.4% from 1978.

Dry holes drilled in 1979 reached an average total depth of 5,256 ft, a decrease of 1.9%. The average cost per foot for dry holes was $64.60, an increase of 22.9% over 1978.

The total number of wells completed in 1979 increased 4%, and total footage drilled increased 3%.

Offshore, the total cost of wells completed in 1979 came to more than $3.2 billion, an increase of 24.4% over 1978. The total number of offshore wells increased 5.3% over 1978, while their average depth increased 0.1%. The average cost per foot offshore in 1979 was $258.79, an increase of 18.1%

On a state-by-state basis, Kentucky has regained its status as the most inex-

Estimated costs of drilling and equipping wells in the U.S. by depth intervals (1979)

Depth interval, ft	Total number of wells, average depth, and cost per well				
		Oil	Gas	Dry	Total
0 to 1,249	Wells	3,124	812	1,407	5,343
	Avg depth	830	893	752	819
	Avg cost, $	27,652	28,250	21,387	26,078
1,250 to 2,499	Wells	3,679	2,249	2,135	8,063
	Avg depth	1,832	1,986	1,892	1,891
	Avg cost, $	65,551	63,570	47,669	60,263
2,500 to 3,749	Wells	3,754	2,607	2,723	9,084
	Avg depth	3,117	3,178	3,138	3,141
	Avg cost, $	107,543	106,909	74,392	97,424
3,750 to 4,999	Wells	2,570	2,231	2,540	7,341
	Avg depth	4,390	4,328	4,372	4,365
	Avg cost, $	165,405	148,336	109,387	140,835
5,000 to 7,499	Wells	2,994	2,679	2,962	8,653
	Avg depth	6,081	6,075	6,090	6,082
	Avg cost, $	295,382	293,021	212,947	266,428
7,500 to 9,999	Wells	2,243	1,609	1,609	5,461
	Avg depth	8,581	8,753	8,622	8,644
	Avg cost, $	575,736	732,112	518,218	604,863
10,000 to 12,499	Wells	597	1,091	1,027	2,715
	Avg depth	10,984	11,087	11,060	11,054
	Avg cost, $	1,235,462	1,264,331	1,039,759	1,173,035
12,500 to 14,999	Wells	228	490	503	1,221
	Avg depth	13,301	13,559	13,505	13,488
	Avg cost, $	1,937,921	2,044,331	1,689,753	1,878,390
15,000 to 17,499	Wells	48	209	185	442
	Avg depth	15,969	16,106	16,088	16,084
	Avg cost, $	2,971,925	3,169,246	3,019,871	3,085,296
17,500 to 19,999	Wells	2	64	83	149
	Avg depth	18,698	18,517	18,536	18,530
	Avg cost, $	2,636,369	4,403,905	4,544,039	4,458,241
20,000 & over	Wells	4	20	27	51
	Avg depth	21,631	22,103	21,504	21,749
	Avg cost, $	4,777,025	8,453,415	8,584,738	8,234,595
Totals	Wells	19,243	14,079	15,201	48,523
	Avg depth	4,170	5,493	5,256	4,894
	Avg cost, $	243,130	443,080	339,598	331,367

pensive state in which to drill. It had lost the title to Indiana in 1978, but regained it in 1979 by an average of just under $60/well. Kentucky's 885 wells in 1979 reached an average total depth of 1,418 ft, and cost an average of $40,038 to drill and equip. Indiana was home to 478 wells, but their total depth averaged 1,884 ft, and they cost an average of $40,094. On a cost-per-foot basis, therefore, Indiana comes out cheapest by about $7. Only one of Indiana's wells in 1979 was drilled deeper than 3,750 ft, while Kentucky had 28 wells that were deeper.

Kentucky's costs, by the way, represented a decrease of more than $5,000/well since the previous Joint Association Survey (for 1978). And Kentucky was not alone. Other states experiencing a decline in per-well costs during 1979 include Alaska, Florida, and Mississippi.

Despite their declines, Alaska and Florida remained the most expensive states in which to drill. Alaska's 83 wells in 1979 cost an average of $3,800,383 to drill and equip. Their average depth, however, was 10,991 ft.

Florida had only one well that was shallower than 10,000 ft in 1979, and the 25 that were drilled deeper than 10,000 ft brought the average cost per foot in the Sunshine State to just about $100.

Among the most active states, Louisiana continues to be among the most expensive. The state's 4,230 wells cost close to $1 million apiece in 1979, and cost per foot rose to $133 during the year from the 1978 level of $112/ft.

Texas, of course, still is the most active state, with Oklahoma a distant second. Both states, however, came in with comparable depth and cost averages. Louisiana and Kansas continue to vie for third and fourth places, but Louisiana is doing so at a cost that is about 12 times as high as the cost being borne by Kansas. Wells in Kansas, of course, are less than half as deep as those in Louisiana.

North Dakota moved past Mississippi in 1979 as the third ranked state in the matter of average well depth. That state's 442 wells touched bottom at an average depth of 8,932 ft. Mississippi's average well depth, which had been above 9,000 ft in 1978, slipped to 8,762 ft in 1979.

Federal waters offshore Alaska and the Atlantic Coast continue to be the most costly drilling areas in the U.S., with the average well cost in 1979 topping $5.5 million. Northern waters of the Gulf of Mexico were not too far behind, with an average cost per well of more than $4 million. This compares with per-well costs for Gulf of Mexico wells offshore Louisiana of $2.3 million, and offshore Texas of $2.7 million. Average well depths in the three areas were comparable.

Complete copies of the Joint Association Survey are available from API at 2101 L St. NW, Washington, D.C. 20037. Price per copy is $12.

U.S. wells by states, with average depths and costs, 1979

State	Wells	Avg depth	Avg cost, $
Alabama	215	6,606	539,312
Alaska	83	10,991	3,800,383
Arkansas	490	4,958	190,973
California	1,970	3,077	256,185
Colorado	1,064	5,086	205,750
Florida	26	12,547	1,222,134
Illinois	1,122	2,678	63,598
Indiana	478	1,884	40,094
Kansas	4,258	3,358	74,241
Kentucky	885	1,418	40,038
Louisiana	4,230	7,054	943,827
Michigan	481	4,740	245,940
Mississippi	505	8,762	532,683
Montana	757	3,994	208,834
Nebraska	429	4,294	85,569
New Mexico	1,586	5,784	320,534
North Dakota	442	8,932	701,035
Oklahoma	6,286	5,091	304,022
Texas	15,022	5,416	325,590
Utah	272	6,067	752,944
Wyoming	1,272	7,685	734,092
Appalachia[1]	6,214	3,327	104,355
Offshore Fed Waters[2]	57	10,791	5,572,133
Gulf of Mexico (North)	36	9,929	4,186,167

1. Includes New York, Ohio, Pennsylvania, and West Virginia
2. Includes federal waters offshore Alaska and the Atlantic Coast

McCormick Extends Cotton Valley Streak

McCormick Oil & Gas Co. has completed its 44th consecutive successful Cotton Valley gas well in the Oak Hill field in Rusk County, Texas.

The No. 4 Thornton gas unit was completed in Cotton Valley sands from 10,265 to 10,568 ft and flowed 2.9 MMcfd of gas and 3 b/d of condensate through a $^{16}/_{64}$-in. opening.

Drilling Shows Promise In Gulf of Thailand

Texas Pacific Thailand Inc., operator for an international consortium, has another gas and condensate discovery in the southern sector of B Structure field in the Gulf of Thailand.

The wildcat 16-F-1, located in Block 16, approximately 1.6 miles from the nearest well in the field, was completed after drillstem testing, through pipe, from four separate Miocene sandstone zones at a combined rate of approximately 34.5 MMcfd, 384 b/d of condensate, with some CO_2 and water. An additional four sandstone zones were wireline tested and indicated to be hydrocarbon productive. The well is in a separate fault block from other wells in the field, and was drilled to a total depth of 8,380 ft. Water depths in the area are in the 250-ft range.

The B Structure field is located approximately 130 miles northeast of Songkhla in southern Gulf of Thailand waters. According to previous reports by the Thai government, it may be the largest hydrocarbon accumulation in Thailand.

Supron Discovery In North Dakota

Supron Energy Corp.'s F-6-2 wildcat has been completed as a significant oil producer in the Duperow formation on the company's Magpie Creek prospect in Billings County, North Dakota. Nearest production in this formation is approximately 6½ miles to the southeast.

The well tested 1,560 b/d of 45° gravity oil on a $^{24}/_{64}$-in. choke with a flowing tubing pressure of 1,000 psi. The well was drilled to a total depth of 13,003 ft, with the perforated interval at 11,044-54 ft.

CAPITAL EXPENDITURES INCREASE

FORECASTERS WALK ON SHAKY GROUND and never have indicators been more vacillating than today. This year and next U.S. will have the heaviest investments, mostly in exploration and development. Foreign exploration and development will balloon in the future when oil-exporting nations realize that finding and developing oil must continue indefinitely.

Algeria and Libya have proclaimed the need for foreign technology and demanded training for their people and technical aid in return for oil. They receive training and technical management but when foreigners leave, so goes the will and ability to operate the industry.

Atlantic Richfield cancelled two Nigerian contracts this year, an instant picture of the oil glut. There could be more cancellations, especially if the all-out exploration and drilling programs in the U.S. are half-way successful. Ashland reportedly stopped buying 90,000 b/d oil from Mexico and 17,000 b/d from Cameroon at quarterly review time. It seems the company has adequate and better supplies at lower rates.

Saudi Arabia has been telling OPEC for years the members would get in a bind with their headlong race for ever higher prices. Now it appears the chips are down and Saudi is prepared to rule the cartel. Saudi has been smart enough to keep Aramco, the only continuous oil operations management in place since 1948.

One factor that will create high capital expenditures and small profit, or losses, is OPEC members' determination to become involved in "downstream" activities--refining, chemicals, etc. An upswing in 1981 spending for these facilities is in prospect. This includes expansion of marine transport.

Non-communist world capital and exploratory expenditures are less this year than most predictions--up 16% in USA and 11% for total. Including the communist bloc would change the table very little. The communist system is not much better for oil operations than it is for food production. If any sizeable project is attempted it will probably be financed by outsiders.

ESTIMATED CAPITAL AND EXPLORATORY EXPENDITURES FOR FACILITIES AND RESERVES
(U.S. and Non-Communist Countries -- Millions of Dollars -- current Dollars)

	1980			1981^{E}			1982^{E}		
	USA	NON-USA	TOTAL	USA	NON-USA	TOTAL	USA	NON-USA	TOTAL
Oil & Gas*	32,400	17,200	$49,600	37,200	16,100	$53,300	37,400	19,500	$56,900
Manufacturing**	5,100	12,860	17,960	5,900	14,260	20,160	6,100	12,180	18,280
Marketing	1,170	2,400	3,570	1,090	2,940	4,030	1,210	3,100	4,310
Liquid Pipelines+	1,100	5,060	6,160	1,370	5,500	6,870	1,670	5,600	7,270
Marine Transport	3,700	6,700	10,400	3,100	7,400	10,500	2,900	7,700	10,600
Other Energies++	4,660	4,040	8,700	5,350	4,810	10,160	6,500	3,600	10,100
Miscellaneous	1,050	1,200	2,250	2,200	2,390	4,590	3,060	3,400	6,460
Sub total	49,180	49,460	$98,640	56,210	53,400	$109,610	58,840	55,080	$113,920
Gas Pipelines‡‡	5,800	4,800	10,600	7,790	5,100	12,890	9,000	5,300	14,300
LNG/SNG+	630	2,220	2,850	400	1,000	1,400	550	1,300	1,850
Sub total	6,430	7,020	$13,450	8,190	6,100	$14,290	9,550	6,600	$16,150
TOTAL	55,610	56,480	$112,090	64,400	59,500	$123,900	68,390	61,680	$130,070

^{E}Estimate. *Includes exploration and development. **Refining and petrochemical investment by oil/gas companies. +Pipeline & Gas Journal estimates. ++Coal, nuclear, shale oil, tar sands, geothermal, etc., expenditures by oil and gas companies. ‡Energy related investment. ‡‡Transmission and distribution capital estimates by Pipeline & Gas Journal. Only change in 1980 is "Oil & Gas" which late in year went up $2 billion.

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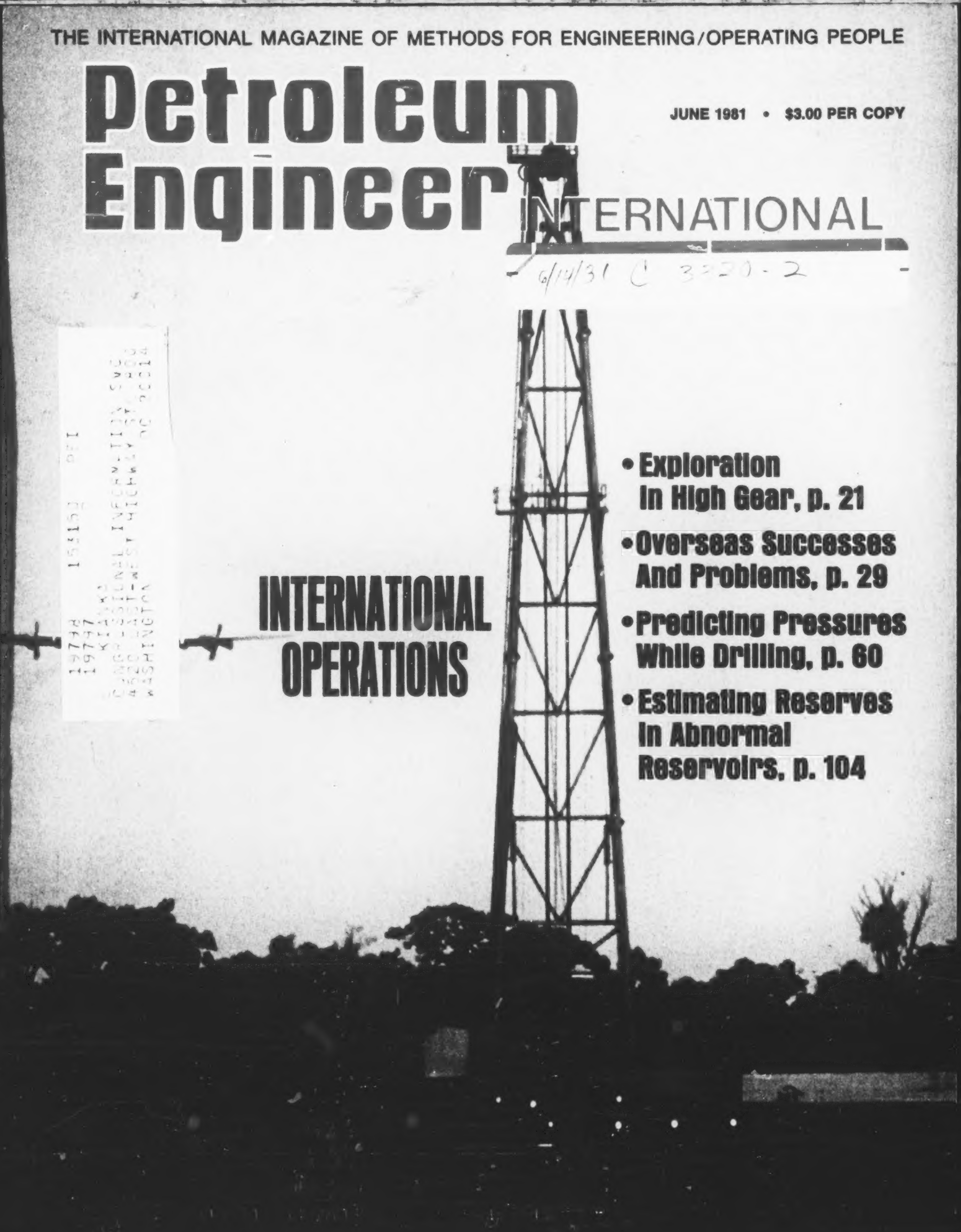

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U.S. Average Up By More Than 900 Rigs

U.S. drillers are averaging more than 900 more rigs per week this year than they were at the same time in 1980, and the active rig count at mid-May topped the figure for the same week a year earlier by more than 1,000.

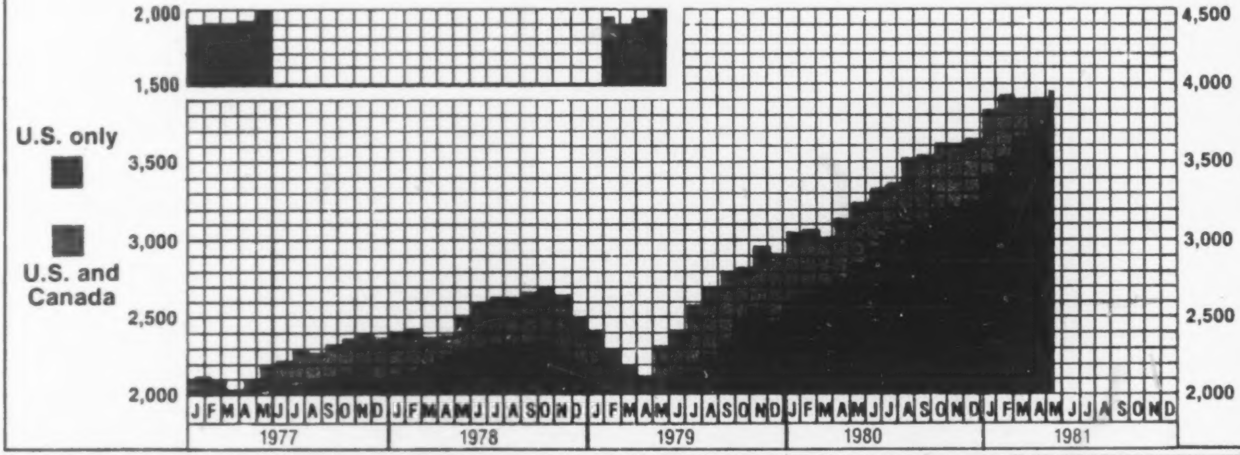
Offshore drilling in the U.S. is up also this year, but it accounts for a lower percentage of total drilling than it did in 1980. This year's 248 active offshore rigs comprise 6.5% of the total. Last year at this same time there were 235 active rigs offshore, and they represented 8.4% of all rigs turning.

Canadian drilling continues to limp along during the period of this report, but this is normal during the spring thaw. If activity north of the border hasn't picked up by mid-June, however, predictions of wholesale rig exodus will be said to have come true.

Rotary Rigs Actually Making Hole In United States & Canada

As Reported to International Association of Drilling Contractors by Hughes Tool Company

	April 20, 1981	April 27, 1981	May 4, 1981	May 11, 1981
Alabama	17	11	20	16
Alaska	28	23	22	22
Offshore	3	3	3	2
Total	31	26	25	24
Arkansas	34	31	29	31
Arizona	1	1	1	1
California Land	130	131	129	129
Offshore	20	20	20	20
Total	150	151	149	149
Colorado	66	71	69	71
Florida Land	7	7	7	6
Offshore	3	2	3	3
Total	10	9	10	9
Georgia Land	1	2	0	0
Hawaii	1	1	1	1
Idaho	3	3	3	3
Illinois	26	25	26	27
Kansas	193	194	196	197
Kentucky	2	2	2	2
North Louisiana	54	56	57	57
South Louisiana				
Inland Waters	88	84	79	82
Land	158	152	155	153
Offshore	151	152	155	149
Total	451	444	446	441
Maryland	0	0	1	1
Michigan	34	35	38	36
Mississippi	72	78	72	68
Montana	85	82	87	87
Nebraska	16	16	14	14
Nevada	7	9	9	8
New Mexico	137	144	142	131
New York	6	6	6	6
North Dakota	123	117	116	115
Ohio	92	89	95	93
Oklahoma	643	656	653	653
Oregon	0	1	1	1
Pennsylvania	34	36	34	35
Rhode Island				
Offshore	1	1	1	1
South Dakota	2	2	2	1
Texas				
Offshore	77	75	75	73
Dist. 1	75	77	69	83
Dist. 2	54	60	70	57
Dist. 3	230	238	242	236
Dist. 4	112	112	114	115
Dist. 5 & 6	150	151	160	160
Dist. 7B	82	91	88	90
Dist. 7C	88	91	91	89
Dist. 8	153	148	139	153
Dist. 8A	83	84	80	83
Dist. 9	73	76	78	77
Dist. 10	59	56	58	60
Total	1237	1259	1264	1276
Utah	65	67	66	71
Virginia	3	3	2	2
Washington	1	1	1	1
West Virginia	35	35	38	38
Wyoming	177	176	182	185
Total U.S.	3756	3784	3801	3795
Western Canada	145	146	144	152
Eastern Canada	4	4	3	3
U.S. and Canada	3905	3934	3948	3950



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ABOUT THE COVER:
A C-130 transport comes in past the Texaco-Amoco drilling rig it carried into the remote Peten area of northern Guatemala. For a roundup of drilling activity that is moving into many such remote areas of the world, see p. 21.

NEXT MONTH: Practical aspects of downhole technology will be featured in the July issue, which will also present an update of PEI's exclusive survey of downhole equipment and repairs.

ENERGY management report™

by Ernestine Adams

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A Loffland Brothers Co. tender-supported drilling rig is shown on a deep-well contract in Lake Maracaibo, Venezuela. Loffland has been drilling in Venezuela since 1946.

The worldwide search for alternative supplies of oil and gas has been an on-again, off-again thing ever since the Arab oil embargo of 1973, while oil price increases were strictly on-again.

But all that is changing. Energy exploration is finally in forward gear, and world prices for oil now are high enough to convince consumers that there really is an energy crisis after all. The result is increased production from nations that are not members of the Organization of Petroleum Exporting Countries, plus reduced consumption worldwide.

Forecasters no longer are talking about 40 million b/d of oil from OPEC by the year 2000. Rather, world demand for oil from the 13 OPEC members now is projected to amount to less than 12 million b/d by the end of the century. OPEC this year is expected to provide no more than 25 million b/d, which will be a 20% reduction from the 31.6 million b/d of oil supplied to the Free World by OPEC in 1979.

That is what is behind recent moves by some OPEC members toward a stabilized price for oil. They've come to the realization that $40/bbl is about as high as the price of crude ought to be, because that is the generally recognized cost of producing synthetic oil from shale.

This means King Crude can expect to retain its crown as the world's prime energy source for the rest of this century at least. And it also means that the international search for oil and gas, which currently is at an all-time high, will continue apace.

The U.S. provides a good case in point. The rotary rig count has been setting modern records each week this year almost without fail, and so has the monthly seismic crew count. And the exploration geophysicists are not only out there in record numbers, they're utilizing technology that has been developed in the past few years to improve the quality of seismic readouts — including high-speed computers and three-dimensional seismic recording systems. And, although development drilling in mature hydrocarbon provinces is accounting for approximately 80% of this year's wells, the high level of sophisticated seismic activity offers encouragement for wildcatting later on.

Petroleum Information Corp., in fact, reports a 23.9% increase in new field wildcats during the first quarter of 1981. Among the 2,044 completions were 189 oil field discoveries, a 36% increase over the same period in 1980, and 163 gas discoveries, 14 more than during last year's first quarter. PI also reports a 19% increase in exploratory drilling in or near existing fields.

70,000 Completions

In all, PI says that U.S. drilling this year is exceeding last year's record pace by almost 20%, and is likely to account for more than 70,000 completions. This is in line with guesses by other prognosticators, who are making open-ended predictions this year after having been outpaced by last year's 62,704 wells. The U.S. rotary rig count at the end of the first quarter of this year stood at 3,656 and was above 3,700 shortly thereafter.

The international active rig count, as shown in the accompanying table, also is on a high, with the total well above 5,000 active rigs as of March 31. Almost all

The Quarterly International Active Rig Report as prepared by Hughes Tool Co., Houston, Tex.

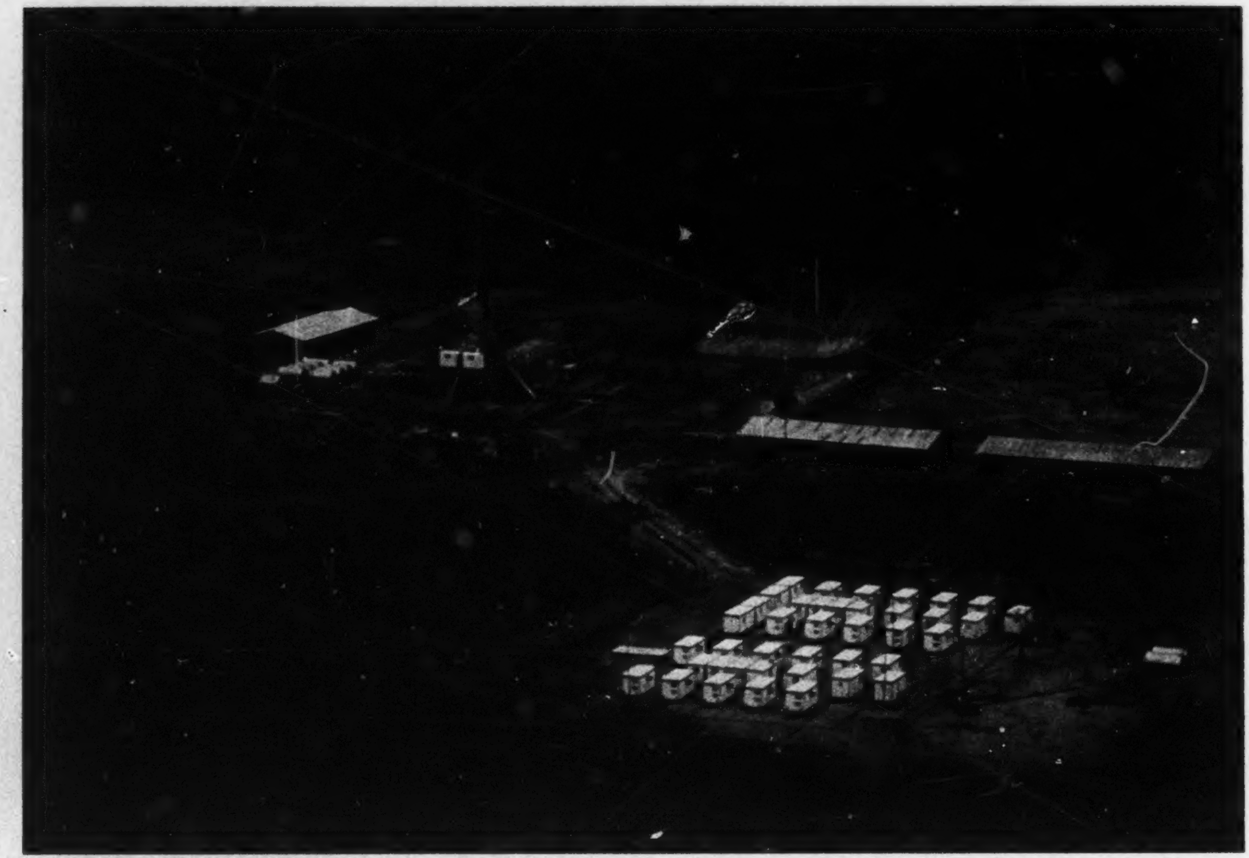
Country	Mar. '80	June '80	Sept. '80	Dec. '80	Mar. '81
South America, Central America and Mexico					
Argentina	73	72	76	82	78
Bolivia	4	4	4	4	11
Chile	6	6	7	8	6
Ecuador	3	3	3	3	3
Peru	19	20	22	22	22
Brazil	64	76	73	75	78
Venezuela	52	54	50	50	63
Colombia	12	14	10	21	21
Trinidad	13	14	12	12	14
Mexico	213	216	216	216	216
Central America	2	3	4	6	6
	461	482	477	499	518
Europe					
Austria	9	8	7	7	8
Denmark	2	3	3	2	2
France	11	11	11	18	17
Germany	21	23	22	22	24
Greece	2	3	3	3	6
Holland	18	20	17	14	15
Italy	19	16	16	25	32
Norway	11	11	11	11	12
Portugal					1
Spain	6	12	11	12	12
Switzerland	1	1	1	1	1
United Kingdom (North Sea)	43	50	50	50	58
Yugoslavia	22	22	22	22	22
	166	181	176	187	210
Africa					
Algeria	113	113	111	106	106
Angola	5	5	5	4	4
Cameroon	7	4	4	8	8
Congo	4	4	4	5	7
Gabon	9	9	9	6	12
Libya	45	40	40	40	33
Morocco	2	2	2	3	4
Chad	1	1	1	1	1
Nigeria	20	20	20	20	20
Tunisia	7	7	7	9	9
Niger	5	5	5	5	5
Ivory Coast	3	3	3	3	4
South Africa	2	2	2	2	2
Sudan	2	2	2	2	3
Zaire	1	1	1	1	1
	226	218	216	215	219
Middle East					
Abu Dhabi	21	24	24	24	28
Bahrain	1	1	1	1	1
Dubai	1	3	3	3	2
Egypt	24	27	27	27	22
Iraq	37	39	39	39	39
Kuwait	2	3	3	3	3
Oman	7	8	8	8	9
Qatar	7	8	8	8	8
Ras Al Khaimah	–	1	1	1	1
Saudi Arabia	24	25	25	25	29
Sharjah	–	1	1	1	2
Syria	16	15	15	15	16
Turkey	7	7	40	40	26
Umm Al Qaiwain					1
	147	162	195	195	187
Asia					
Bangladesh	2	2	4	5	5
Brunei	8	8	7	7	7
Burma	23	24	27	28	31
India	43	42	43	43	44
Indonesia	72	77	76	84	85
Japan	15	16	16	15	17
Malaysia	11	11	13	13	13
Pakistan	14	12	14	15	16
Philippines	17	13	9	10	11
Thailand	5	4	5	5	7
Taiwan	12	12	12	12	12
	224	223	227	237	248
Australia	12	17	19	14	14
New Zealand	2	1	1	4	4
Papua New Guinea	–	1	1	–	–
	14	19	21	18	18
Total free world except U.S. and Canada	**1,238**	**1,285**	**1,312**	**1,351**	**1,400**
North America					
Canada	400	418	387	343	251
U.S.	2,659	2,901	3,138	3,326	3,656
Totals	**4.297**	**4,604**	**4,837**	**5,020**	**5,307**

countries in the Free World are participating in this record level of activity, which has been climbing steadily ever since the Iranian revolution precipitated a sharp rise in oil prices a few years ago.

Only Canada seems to be bucking the international trend toward serious, all-out exploration, and it is the only country listed in the International Rig Report as having a significant decline in activity during the past year. Canada's troubles, however, have nothing to do with a lack of will on the part of the petroleum industry. They stem, rather, from a lack of appreciation by Ottawa of the seriousness of the energy situation.

The industry has turned up substantial new oil reserves off Canada's east coast and in the Beaufort Sea and High Arctic Islands area off the northwest coast recently, but development activities in these frontier areas are by no means a sure thing unless the industry can count on a stable political environment and freedom from additional confiscation of production by the federal government.

The Hibernia field offshore Newfoundland, for example, has been proven to be a substantial reservoir since its discovery in 1979, but Canada's tough new tax proposals could make the field uneconomic to develop. The physical environment at Hibernia is one of the most severe in the world. Not only are wave heights frequently in excess of 40 ft during the



Texaco and Amoco hit oil their first time at bat in the Peten area of northern Guatemala with this well, Xan No. 1. It struck 13.4° API gravity oil below 7,500 ft, and prompted the companies to fly in an additional rig.

winter, they are rarely less than 8 ft at any time of the year. The 100-year maximum design wave for the area is in the North Sea range of 100 ft.

But there's more. Icebergs represent not only a threat to production platforms in the area, but they also pose a threat to equipment and flow lines on the seafloor. So, production systems at Hibernia will have to be much more sophisticated, and costly, than they are in the North Sea.

Production will be difficult also in the Arctic Islands and the Beaufort Sea, where reserves are a long way from markets and transportation is likely to involve ice-breaking tankers.

Amazingly enough, however, although many Canadian drilling contractors have shown their displeasure with Ottawa by leaving the country altogether, petroleum companies still are spending big money to explore Canada's frontier areas. A Shell group, for example, has just announced a $200 million oil exploration program in water depths ranging from 2,900 to 8,900 ft off the coast of Nova Scotia. And, Mobil and Petro-Canada are continuing delineation and exploratory activity this year on the Labrador Shelf.

Veritable Hotbed

Latin America, on the other hand, is a veritable hotbed of exploration for oil and gas. Mexico says it will keep 223 drilling rigs active this year, which means that country could move ahead of Canada as the second busiest Free World driller before long. In nearby Guatemala, Texaco and Amoco have just struck oil in the first well drilled on a 487,000-acre contract area granted by the government in late 1978. The rig is being moved to another location nearby, and a second rig has been flown in to drill a third wildcat 12 miles away. The exploration is in the same geological province as that of Mexico's prolific Reforma and Chac fields 120 miles to the northwest.

Also in Guatemala, Getty Oil is continuing a wildcatting program in a jungle area about 90 miles northeast of Guatemala City.

In Panama, Sossa Petroleum is drilling a confirmation well on the Canazas dome in Darien Province, near Colombia. The first full-scale drilling operation in Panama's recent history, the program calls for a total of eight wildcats to be drilled in the country's eastern jungle region. Sossa holds exclusive rights to seven areas in Panama which are believed to contain 12 onshore and offshore structures.

Phillips Petroleum has completed seismic work in both the Cesar Basin and offshore Colombia, and is drilling its third land well this year. An offshore wildcat is planned for 1981 also.

In the Cocorna area of Colombia's Magdalena Valley, Texaco started a 20-well drilling program last year, and is planning a 456-well development program. The initial Cocorna production objective is to achieve 20,000 b/d of heavy oil by 1985, and to sustain or increase this production level over the next 28 years.

Venezuela's exploration activities are in high gear, with 370 wildcats scheduled to be drilled this year. As recently as 1976, the country could take credit for only 50 exploratory wells a year. Venezuela is also embarked on an ambitious project to evaluate the resources of the big Orinoco heavy oil belt that stretches for some 400 miles through eastern Venezuela. This will involve the drilling of some 600 additional wells by 1984.

Occidental Petroleum is continuing to explore the jungles of Peru, where production reached 109,000 b/d last year from 11 fields. Oxy also has defined a number of promising structures in nearby Bolivia on which drilling is to get underway this year.

Brazil is still very active offshore, where a seventh platform has just been commissioned for the Pampo area in the Campos Basin. A newer offshore area is located north of Brazil, in Central America, where Antigua recently granted an exploration license to Alladin Petroleum Corp. of Wichita, Kan. The area involved contains more than 5 million acres of territorial waters around the West Indies state and its dependencies, Barbuda and Redonda.

Offshore Waves

Argentina is causing waves offshore Tierra del Fuego, where both Shell and Exxon struck oil this year. The Shell well tested 5,000 b/d, and Exxon's was clocked at 3,100 b/d. Like wells offshore Canada, the new Argentine wells are a long way from production, but they lend credence to the belief in some quarters that the area between southern Argentina and the Falkland Islands contains as much oil as does the North Sea.

The third Ninian platform came on stream late last year in the UK sector of the North Sea, and average production from the field this year is expected to be 325,000 b/d. At the nearby Block 3/7 field, meanwhile, Chevron adapted onshore fracturing techniques to offshore use and tripled the production rate of an important appraisal well. Development of the field now appears to be economically attractive.

A few miles north of Ninian, Conoco is going ahead with plans to install the world's first operational drilling and production tension-leg platform at the Hutton field. Initial production at Hutton is scheduled for 1984. This puts Conoco on a similar schedule with Exxon, which has just announced plans to install the world's first guyed tower in Mississippi Canyon Block 280 of the Gulf of Mexico in time for production to also begin in 1984.

Phillips Petroleum, one of the pioneers of North Sea development with its Greater Ekofisk complex in the Norwegian sector, expects to begin its first crude production in the UK sector when the Maureen field comes on stream in 1982 or '83. The company also is actively exploring northwest of Maureen, in three discoveries known as the T-Block.

Oil Fever Spreads

Onshore, oil fever has spread to Northern Ireland where a petroleum exploration license has been issued to a consortium led by Ulster Natural Resources. The 455-sq-mile license area includes 85 sq miles of sea covering territorial waters out to the 3-mile limit offshore Antrim and Londonderry.

In Scotland, a group consisting of Dalco Petroleum, Delphi International, North Sea Petroleum, and Pacific Basin (UK) is exploring 59,000 acres in the area of Dunfermline, County Fife. Drilling depths there range from 500 to 700 ft, and indications, are that recoverable reserves in the area could be as much as 70 million bbl of oil.

Africa is beginning to lose its reputation as a sleeping giant among the world's oil provinces as exploratory activity picks up both offshore and on. A Phillips Group offshore the Republic of the Ivory Coast, for example, just completed testing a third confirmation well at rates ranging from 800 to 1,400 b/d of oil and 1 to 2.7 MMcfd of natural gas. Three drilling rigs are currently at work in the area, and an early production platform is to be installed next spring.

In the sprawling Sudan, Chevron has a new oil discovery for which early estimates of reserves indicate production of 10,000 b/d could last for 10 years. And that is not Chevron's first discovery on its 150,000-sq-mile acreage. The company's Unity field is due to come on stream next year at a rate of 15,000 b/d.

The Spanish oil firm Hispanoil will drill its first wildcat in Equatorial Guinea's territorial waters as soon as it can contract a drilling rig. With today's virtual 100% utilization rate for offshore rigs, the company does not realistically expect to begin drilling until late this year or early in 1982. Hispanoil has, however, completed a seismic survey off the Fernando Po coast.

Excitement in Sharjah

Amoco is generating excitement in Sharjah with its three Shajja wells. Early estimates are that the field could yield 80,000 b/d of condensate and 800 MMcfd of natural gas. The country's present production amounts to only 12,000 b/d of oil from the Mubarak offshore field. The Shajja wells are onshore.

Mobil and the French company Total struck oil earlier this year offshore Cameroon. The find is not believed to be commercial, but it is the first oil discovery in the area, which is 10 miles offshore Kribi. Appraisal wells, therefore, are in the works.

Australia is continuing its comeback as an active drilling province, with active rigs having tripled there since a pro-business government was elected to power in 1975. The big splash in that part of the world these days, however, is Conoco's oil discovery in Irian Jaya. The well, located 130 miles from the nearest oil production, flowed at a stabilized rate of 6,000 b/d of 39° API gravity oil, with no natural gas or water. The well, drilled in jungle-covered lowlands near the coast of Irian Jaya (the western half of New Guinea), struck pay dirt at the top of the Kais Carbonate formation, at a depth of about 1,530 ft. ■

"Big Oil" Takes it on the Chin

by Greg Martin, *Editor, ENERGY NEWS/ENERGY WEEK*

First quarter earnings of 62 oil companies plunged 13.6% from first quarter of 1980, dragged down by heavy losses in the refining sector of integrated companies. Income continued to rise for independent producers, boosted by the final increment of U.S. crude oil decontrol on Jan. 28. The profit margin for the entire group fell from 6.9% to 5.2%.

"Big Oil" took it on the chin as refiners were forced to cut prices to try to get rid of bulging product inventories. In the weakening market for gasoline, refiners couldn't raise prices enough to recoup rising costs of crude oil.

Some refiners found themselves buying OPEC crude for $4/bbl more than the selling price of refined product yields. Those without oil/gas production, like Ashland, Clark Oil and Tosco, suffered most.

Income declines, of course, were relative to record earnings in first quarter 1980. Majors like Standard Indiana, Gulf and Conoco saw big refining/marketing profits in that quarter turn to big losses in 1981's first quarter.

Texaco shook a 10% earnings gain out of inventories. It needs less product to supply its customers after closing part of its retail markets. Standard Ohio's gain was due to higher prices for Alaskan crude oil; Standard California credited higher prices for crude and natural gas.

"A free market does not quickly absorb sudden cost increases when demand is weak," said Robert Anderson, chairman, Atlantic Richfield. W. C. Douce, head of Phillips, noted: "The recent decline in the price of gasoline is evidence of the vigorous competition that is taking place."

Majors also had to pay sharply higher "windfall profits" tax (WPT) compared to first quarter 1980, when the tax was in effect only one

(Continued on page 8)

FIRST QUARTER GAS COMPANIES FINANCIAL REPORTS

	Three months ending March 31**							
	Revenues ($000)			Earnings* ($000)			Profit Margin‡	
	1981	1980	% Chg.	1981	1980	% Chg.	1981	1980
Alabama Tennessee N.G.	34,064	26,778	+ 27.2	1,638	1,324	+ 23.7	4.8	4.9
American Nat. Resources	1,124,220	976,333	+ 15.1	61,254	54,160	+ 13.1	5.4	5.5
Arkansas Louisiana Gas	339,659	286,312	+ 18.6	34,432	35,898	- 4.1	10.1	12.5
Columbia Gas	1,439,821	1,302,382	+ 10.6	83,394	82,478	+ 1.1	5.8	6.3
Commonwealth Nat. Res.	76,846	70,207	+ 9.5	2,975	3,124	- 4.8	3.9	4.4
Consolidated Nat. Gas	1,043,042	953,206	+ 9.4	71,218	70,003	+ 1.7	6.8	7.3
ENSERCH Corp.	834,842	694,687	+ 20.2	58,354	45,290	+ 28.8	7.0	6.5
Equitable Gas	160,327	125,326	+ 27.9	20,660	16,680	+ 23.9	12.9	13.3
Houston N.G.[1]	719,477	586,632	+ 22.7	61,807	49,295	+ 25.4	8.6	8.4
InterNorth	1,142,615	938,396	+ 21.8	116,957	111,114	+ 5.3	10.2	11.8
Mountain Fuel Supply	146,557	129,025	+ 13.6	14,575	14,950	- 2.5	9.9	11.6
ONEOK Inc.	333,877	280,206	+ 19.2	21,239	20,929	+ 1.5	6.4	7.5
Peoples Energy	1,234,686	1,075,862	+ 14.8	88,770	66,242	+ 34.0	7.2	6.2
Pioneer Corp.	288,155	210,483	+ 36.9	29,198	23,430	+ 24.6	10.1	11.1
Southern Nat. Resources	678,054	553,782	+ 22.4	47,348	37,050	+ 27.8	7.0	6.7
Texas Eastern Corp.	1,154,547	1,086,711	+ 6.2	62,608	61,258	+ 2.2	5.4	5.6
Texas Gas Transmission	683,164	585,333	+ 16.7	31,628	25,073	+ 26.1	4.6	4.3
TransCanada PipeLines	961,533	782,892	+ 22.8	25,955	22,050	+ 17.7	2.7	2.8
Transco Companies	865,190	586,235	+ 47.6	31,386	28,357	+ 10.7	3.6	4.8
Union Gas Ltd.	315,794	260,352	+ 21.3	16,532	15,485	+ 6.8	5.2	5.9
United Energy Resources	1,264,076	1,034,782	+ 22.2	55,404	41,702	+ 32.9	4.4	4.0
Westcoast Transmission	371,903	436,986	- 14.9	15,927	11,920	+ 33.6	4.3	2.7
TOTAL	15,212,449	12,982,098	+ 17.2	953,259	837,812	+ 13.8	6.3	6.5

*Earnings available to common. **Excluding non-recurring items. ‡Earnings* divided by Revenues.

[1] Three months ending January 31.

FIRST QUARTER OIL COMPANIES FINANCIAL REPORTS

		Three months ending March 31**							
		Revenues ($000)			Earnings* ($000)			Profit Margin‡	
		1981	1980	% Chg.	1981	1980	% Chg.	1981	1980
1.	Adobe Oil	39,305	39,221	+ 0.2	5,156	5,068	+ 1.7	13.1	12.9
2.	Alaska Interstate	91,278	56,735	+ 60.9	17,946	14,221	+ 26.2	19.7	25.1
3.	Amerada Hess	2,969,215	2,325,398	+ 27.7	174,536	198,978	- 12.3	5.9	8.6
4.	American Petrofina	666,473	523,374	+ 27.3	20,250	31,410	- 35.5	3.0	6.0
5.	American Quasar	13,716	10,085	+ 36.0	650	2,242	- 71.0	4.7	22.2
6.	Arapaho Petroleum[1]	14,401	5,517	+161.0	112	142	- 21.1	2.6	4.5
7.	Argo Petroleum	4,160	3,229	+ 28.8	645	474	+ 36.1	15.5	14.7
8.	Ashland Oil	2,153,998	2,040,159	+ 5.6	715	42,262	- 98.3	0.03	2.1
9.	Atlantic Richfield	7,132,320	5,461,176	+ 30.6	346,484	427,017	- 18.9	4.9	7.8
10.	Belco Petroleum	232,684	211,543	+ 10.0	26,246	18,243	+ 43.9	11.3	8.6
11.	Buttes Gas & Oil	37,630	40,217	- 6.4	2,943	3,186	- 7.6	7.8	7.9
12.	Callon Petroleum[1]	2,123	1,578	+ 34.5	238	384	- 38.0	11.2	24.3
13.	Clark Oil & Refining	403,708	402,274	+ 7.1	(4,469)	14,100			3.5
14.	Commonwealth Oil Ref.	304,569	306,243	- 0.5	(22,348)	(6,700)			
15.	Consolidated O&G	11,537	8,141	+ 29.4	1,982	94	+2008.5	17.2	1.2
16.	Conoco	5,396,200	4,300,000	+ 24.6	250,900	328,600	- 23.6	4.6	7.6
17.	Crown Central Petr.	379,080	306,230	+ 23.8	(10,228)	11,478			3.7
18.	Crystal Oil	75,874	58,321	+ 30.1	(1,573)	2,887			5.0
19.	Delhi Int'l Oil	7,919	5,596	+ 41.5	1,181	981	+ 20.4	14.9	17.5
20.	Diamond Shamrock	864,968	755,331	+ 14.5	48,037	56,255	- 14.6	5.6	7.4
21.	Discovery Oil	1,379	446	+209.2	102	(14)		7.4	
22.	Dorchester Gas[1]	151,874	174,778	- 13.1	6,631	7,583	- 12.6	4.4	4.3
23.	Dyco Petroleum	10,579	6,396	+ 65.4	2,956	1,610	+ 83.6	27.9	25.2
24.	Exxon	30,323,000	27,654,000	+ 9.7	1,600,000	1,925,000	- 16.9	5.3	7.0
25.	Felmont	19,047	11,948	+ 59.4	4,952	3,749	+ 32.1	26.0	31.4
26.	Forest	31,094	21,464	+ 44.9	2,282	2,123	+ 7.5	7.0	10.9
27.	Getty Oil	3,294,621	2,268,699	+ 45.2	229,930	225,548	+ 1.9	7.0	9.9
28.	Gulf Oil Corp.	7,874,000	7,753,000	+ 1.6	303,000	389,000	- 22.1	3.8	5.0
29.	Howell Petroleum	22,179	4,381	+406.3	1,924	862	+123.2	8.7	19.7
30.	Inexco Oil	52,898	31,720	+ 66.8	6,345	5,747	+ 10.4	12.0	18.1
31.	Kerr-McGee Corp.	916,126	780,394	+ 17.4	43,337	47,142	- 8.1	4.7	6.0
32.	Louisiana L&E	322,802	264,954	+ 21.8	50,562	51,593	- 2.0	15.7	19.5
33.	Mapco Inc.	580,021	378,811	+ 53.1	25,435	31,296	- 18.7	4.4	8.3
34.	Marathon Oil	2,424,098	2,265,368	+ 7.0	69,775	139,071	- 49.8	2.9	6.1
35.	McFarland Energy	3,985	3,389	+ 17.6	1,175	1,065	+ 10.3	29.5	31.4
36.	Mesa Petroleum	103,624	106,930	- 3.1	29,841	19,913	+ 49.9	28.8	18.6
37.	Mobil Corp.	17,095,000	15,278,000	+ 11.9	640,000	846,000	- 24.3	3.7	5.5
38.	Murphy Oil	666,806	569,245	+ 17.1	38,430	28,390	+ 35.4	5.8	5.0
39.	Natomas	369,348	294,214	+ 25.5	58,237	48,015	+ 21.3	15.8	16.3
40.	Noble Affiliates	87,503	67,584	+ 29.5	10,850	13,459	+ 34.1	20.6	19.9
41.	Occidental Petroleum	3,379,600	3,346,600	+ 10.0	259,400	277,900	- 6.7	7.7	8.3
42.	Pacific Resources	231,382	206,960	+ 11.8	(1,380)	9,030			4.4
43.	Patrick Petroleum[2]	18,634	12,376	+ 50.6	1,304	574	+127.2	7.0	4.6
44.	Pennzoil Co.	687,988	612,905	+ 12.3	59,123	82,501	- 28.3	8.6	13.5
45.	Phillips Petroleum	4,228,469	3,384,162	+ 24.9	270,784	284,414	- 4.8	6.4	8.4
46.	Quaker State	218,157	194,860	+ 12.0	3,636	6,879	- 47.1	1.7	3.5
47.	Shell Oil	5,413,000	4,798,000	+ 12.8	361,000	373,000	- 3.2	6.7	7.8
48.	Southland Royalty	95,680	90,635	+ 5.6	10,248	18,800	- 45.5	10.7	20.7
49.	Standard California	11,988,000	10,447,000	+ 14.8	660,000	627,000	+ 5.3	5.5	6.0
50.	Standard Indiana	7,853,100	6,450,900	+ 21.7	376,700	576,000	- 34.6	4.8	8.9
51.	Standard Ohio	3,119,300	2,658,700	+ 17.3	520,400	450,700	+ 15.5	16.7	17.0
52.	Statex Petroleum	2,504	1,243	+101.4	589	186	+216.7	23.5	15.0
53.	Sun Co.	4,000,000	3,100,000	+ 29.0	120,000	251,000	- 52.2	3.0	8.1
54.	Superior Oil	492,906	330,287	+ 49.2	107,960	90,566	+ 19.2	21.9	27.4
55.	Tenneco	3,809,000	3,316,000	+ 14.9	194,000	178,000	+ 9.0	5.1	5.4
56.	Tesoro	841,574	823,265	+ 2.2	23,273	36,155	- 35.6	2.8	4.4
57.	Texaco Inc.	15,453,000	13,248,900	+ 16.6	658,000	600,600	+ 9.6	4.3	4.5
58.	Texas Oil & Gas	389,659	294,901	+ 32.1	47,874	34,783	+ 37.6	12.3	11.8
59.	Tosco Corp.	762,429	534,162	+ 42.7	(38,688)	22,629			4.2
60.	Tribune Oil	563	472	+ 19.3	164	191	- 14.1	29.1	40.5
61.	Union California	2,666,458	2,375,612	+ 12.2	154,479	152,922	+ 1.0	5.8	6.4
62.	Woods Petroleum	16,377	11,968	+ 36.8	4,667	3,065	+ 52.3	28.5	25.6
	TOTAL	150,818,922	131,035,997	+ 15.1	7,785,900	9,015,369	- 13.6	5.2	6.9

*Earnings available to common. **Excluding non-recurring items. () Loss. ‡Earnings* divided by revenues. [1]Ends February 28, 1981 and February 29, 1980. [2]Third quarter ends January 31, 1981.

month. Standard California said its $377 million WPT payments were higher than for all of 1980.

Other WPT totals: Exxon, $584 million; Standard Indiana, $532.4 million; Atlantic Richfield, $449 million; Shell, $387 million; Gulf, $327 million; Texaco, $319.2 million; Mobil, $249 million; Union California, $139.5 million.

In times of controlled prices, the lost margins of profit could be "banked" for later recovery. Now, refiners must find a way out.

Nonetheless, refiners' outlook for the rest of 1981 is not that bleak. Standard Indiana, Union California and Conoco still expect improvement over 1980, as refiners absorb major capital expenditures for refinery modifications and the full impact of oil price decontrol.

Clark Oil says consumer resistance to higher product prices is putting pressure on crude oil producers to lower prices. "We expect some degree of price improvement for the balance of 1981, and further margin improvements will be realized." Tosco expects "further strengthening over the rest of the year." Pacific Resources anticipates "a strong second half as product prices and markets strengthen."

Independent producers will show big earnings gains this year—but they'll also be saddled with big WPT payments.

Gas company results were mixed. Net income for the group as a whole rose 13.8% over first quarter 1980, but revenue gains outstripped earnings as rising costs of natural gas were passed through to end users. The group's profit margin dipped from 6.5% to 6.3%.

As in 1980, gas companies derived an increasing share of earnings from nonregulated operations — oil/gas exploration and production, gas processing, contract drilling.

Exploration/production earnings for InterNorth rose 167% over previous year's first quarter. Tax credits from InterNorth's investment in Northern Border Pipeline project also helped.

Impetus behind ENSERCH's record first quarter earnings came from exploration/production and oilfield services segments, as gas transmission and distribution income fell. Nonutility business also was the main factor in ONEOK's increased earnings.

Contract drilling operations were largely responsible for Peoples Energy Corp.'s income gain, offset by weak industrial gas markets and higher operating and financing costs.

Columbia Gas benefited from "increased sales of oil, gas, propane and other hydrocarbons." Income would have been greater except for reduced industrial gas sales and loss of equity earnings on the LNG facility at Cove Point, MD.

Mountain Fuel Supply's utility operations had lower income, but oil/gas earnings were sharply higher due to decontrol.

All segments of Southern Natural Resources showed big earnings gains: Gas pipeline operations up 25%, exploration/production up 71%, contract drilling up 121%.

All units of United Energy Resources contributed to record first quarter earnings. United's pipeline system had its lowest level of gas curtailments in recent history. ■

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